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WEATHER BUREAU - - F. W. Reichelderfer, *Chief*

MONTHLY WEATHER REVIEW

JULY 1945

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MONTHLY WEATHER REVIEW

Acting Editor, Robert N. Culnan

VOL. 73, No. 7
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JULY 1945

CLOSED SEPTEMBER 5, 1945
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METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR JULY 1945

AEROLOGICAL OBSERVATIONS

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidities in percent, obtained by radiosondes during July 1945*

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL

Altitude (meters) m. s. l.	Albany, N. Y. (94 m.)				Albuquerque, N. Mex. (1,620 m.)				Apalachicola, Fla. (5 m.)				Atlanta, Ga. (300 m.)				Big Spring, Tex. (774 m.)				Bismarck, N. Dak. (505 m.)				Boise, Idaho (868 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	26	1,005	19.8	86	31	839	25.6	39	31	1,016	26.0	86	31	982	23.9	83	31	927	26.4	62	30	955	20.7	70	31	914	27.2	31
500	26	959	19.1	78					31	960	23.3	80	31	960	23.8	77												
1,000	26	905	17.1	73					31	907	20.7	72	31	907	21.8	71	31	904	25.5	59	30	902	20.5	54	31	900	27.7	22
1,500	26	853	14.0	73					31	856	18.0	67	31	856	18.7	70	31	854	22.2	58	30	851	17.1	56	31	850	24.3	21
2,000	26	803	10.5	72	31	803	23.7	36	31	807	15.0	63	31	807	15.5	68	31	805	18.5	60	30	802	13.6	59	31	802	20.2	22
2,500	26	757	7.9	66	31	759	20.1	37	31	761	12.2	63	31	761	12.3	64	31	760	14.9	57	30	756	10.2	55	31	757	15.9	26
3,000	26	712	5.4	61	31	715	16.2	40	31	716	9.3	63	31	716	9.2	61	31	715	11.7	50	30	711	7.0	55	31	713	11.6	29
4,000	26	629	−0.1	49	31	635	8.1	52	31	634	3.8	64	29	635	3.4	61	31	634	5.2	42	30	629	0.6	53	31	632	4.0	31
5,000	26	554	−5.5	52	30	562	0.1	63	31	560	−1.7	63	28	560	−2.0	54	30	560	−0.3	36	29	554	−5.7	48	30	558	−3.4	36
6,000	26	487	−11.2	47	30	495	−6.9	71	30	493	−7.4	56	28	494	−7.8	51	27	494	−6.2	38	29	487	−12.3	40	30	490	−10.7	34
7,000	24	428	−17.6	51	29	435	−12.6	57	30	434	−13.2	57	28	434	−13.8	53	25	434	−12.5	----	28	427	−19.0	38	29	430	−17.7	----
8,000	24	374	−24.2	----	29	381	−18.9	46	29	380	−19.6	57	28	380	−20.2	----	23	380	−19.0	----	26	373	−26.7	----	29	376	−24.9	----
9,000	24	325	−31.3	----	29	332	−26.0	----	28	331	−26.8	----	27	330	−27.1	----	22	332	−26.2	----	26	323	−34.3	----	29	326	−32.7	----
10,000	24	282	−38.6	----	29	289	−33.5	----	27	288	−34.5	----	27	287	−34.5	----	21	288	−33.9	----	23	279	−42.3	----	28	283	−39.8	----
11,000	24	243	−46.2	----	28	250	−41.1	----	27	248	−42.7	----	27	248	−42.5	----	21	249	−41.6	----	22	240	−49.2	----	26	244	−46.2	----
12,000	24	208	−52.7	----	28	215	−48.1	----	27	214	−50.8	----	27	214	−50.3	----	21	214	−49.5	----	21	207	−53.8	----	26	209	−51.9	----
13,000	24	178	−57.6	----	28	184	−55.2	----	25	183	−58.9	----	27	183	−57.4	----	21	184	−57.1	----	20	177	−55.9	----	24	179	−55.4	----
14,000	19	152	−59.6	----	27	157	−61.5	----	23	156	−65.6	----	25	156	−63.1	----	20	156	−64.0	----	19	151	−57.9	----	21	153	−58.2	----
15,000	15	130	−60.9	----	19	134	−67.6	----	15	132	−70.0	----	22	132	−67.6	----	16	132	−69.4	----	14	128	−58.5	----	17	131	−60.9	----
16,000	14	110	−61.7	----	11	113	−71.3	----	10	112	−70.6	----	14	112	−69.6	----	8	112	−73.1	----	11	109	−58.0	----	10	112	−62.9	----
17,000	9	94	−60.2	----					6	93	−67.7	----	6	95	−67.3	----					8	93	−57.5	----	6	95	−61.8	----
18,000	5	79	−57.3	----																								

	Brownsville, Tex. (6 m.)				Buffalo, N. Y. (221 m.)				Caribou, Maine (193 m.)				Charleston, S. C. (14 m.)				Clovis, N. Mex. (1,306 m.)				Denver, Colo. (1,616 m.)				Dodge City, Kans. (787 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	1012	27.4	81	31	990	19.1	80	31	992	16.8	80	31	1016	24.4	91	31	870	23.7	53	30	841	21.4	53	31	925	23.8	62
500	31	957	24.3	76	31	958	19.4	69	31	957	17.5	68	31	962	23.6	84												
1,000	31	904	21.9	64	31	904	16.7	67	31	903	15.2	64	31	908	21.2	76									31	903	24.4	55
1,500	31	853	19.5	57	31	852	13.4	67	31	850	11.6	68	31	857	18.4	74	31	851	23.2	51					31	853	22.1	52
2,000	31	804	16.7	51	31	803	10.2	67	31	801	8.0	72	31	808	15.6	72	31	803	20.2	51	30	804	20.8	43	31	804	18.7	54
2,500	31	758	13.7	49	31	756	7.1	62	31	754	5.0	68	31	762	12.9	68	31	758	16.6	54	30	759	17.5	43	31	759	15.4	55
3,000	31	714	10.5	46	31	711	4.4	59	31	709	2.6	54	31	717	9.9	66	31	714	12.7	58	30	715	13.6	45	31	715	12.1	54
4,000	31	633	4.5	42	31	628	−0.9	58	31	626	−2.7	50	30	636	4.0	70	31	634	6.0	47	30	634	6.0	49	31	634	5.4	46
5,000	31	559	−1.4	41	29	553	−6.6	46	30	551	−8.9	43	29	561	−1.5	66	30	560	−0.9	45	29	560	−1.7	55	28	560	−1.2	40
6,000	31	492	−7.3	42	27	486	−12.4	----	29	483	−14.7	44	29	494	−7.0	61	30	494	−6.8	43	28	493	−8.9	86	28	493	−7.6	40
7,000	31	433	−13.3	42	24	436	−19.4	----	28	423	−21.7	----	27	434	−12.7	58	39	434	−12.6	41	28	434	−14.9	51	27	434	−13.7	----
8,000	31	379	−19.9	----	24	372	−26.0	----	28	368	−29.1	----	26	381	−19.3	59	29	380	−19.2	----	28	379	−22.0	----	27	379	−20.7	----
9,000	31	330	−27.0	----	16	321	−34.6	----	27	319	−36.4	----	26	332	−26.8	----	29	331	−26.6	----	28	330	−29.2	----	25	330	−27.9	----
10,000	31	287	−34.4	----	15	278	−41.4	----	27	276	−43.5	----	25	288	−34.6	----	29	288	−34.1	----	26	286	−37.1	----	23	287	−35.5	----
11,000	31	248	−42.1	----	13	240	−46.9	----	27	238	−49.9	----	25	249	−43.2	----	28	249	−42.0	----	26	247	−44.2	----	23	248	−43.1	----
12,000	31	213	−49.8	----	9	205	−52.4	----	26	203	−55.0	----	25	214	−52.0	----	28	214	−49.8	----	26	213	−51.3	----	21	213	−49.6	----
13,000	30	182	−57.4	----	8	176	−56.8	----	23	174	−55.9	----	24	183	−60.1	----	27	183	−56.8	----	26	182	−57.4	----	20	182	−56.4	----
14,000	26	156	−64.4	----	7	151	−59.5	----	23	148	−56.6	----	19	156	−65.9	----	22	156	−63.5	----	25	155	−62.7	----	16	156	−62.6	----
15,000	20	132	−70.0	----	5	129	−57.5	----	19	126	−56.4	----	8	132	−70.4	----	12	133	−67.8	----	17	131	−66.6	----	14	132	−67.1	----
16,000	16	112	−73.5	----					12	109	−57.3	----					6	112	−70.9	----	8	111	−68.6	----	6	112	−69.0	----
17,000	7	94	−72.7	----					8	93	−55.4	----																

	El Paso, Tex. (1,195 m.)				Ely, Nev. (1,908 m.)				Glasgow, Mont. (648 m.)				Grand Junction, Colo. (1,414 m.)				Great Falls, Mont. (1,128 m.)				Greensboro, N. C. (273 m.)				Hatteras, N. C. (3 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	29	881	28.8	37	31	811	21.7	38	31	938	23.6	44	31	858	26.2	34	31	887	23.2	35	31	986	22.5	86	24	1,018	25.1	89
500																					31	960	22.4	79	24	962	22.9	81
1,000									31	901	23.4	38									31	907	20.3	76	24	909	20.6	70
1,500	29	851	26.9	37					31	850	19.7	42	31	850	26.6	31	31	850	21.4	34	31	856	17.0	76	24	857	17.8	70
2,000	29	804	22.8	41	31	803	22.8	34	31	802	15.6	47	31	802	23.9	28	31	802	17.5	36	31	806	13.9	72	24	808	14.8	66
2,500	29	758	18.6	45	31	758	19.9	31	31	756	11.5	53	31	757	20.0	30	31	756	13.4	39	31	760	10.6	70	24	762	11.8	64
3,000	29	715	14.4	49	31	715	15.8	33	30	711	7.3	58	31	714	15.7	34	31	712	9.1	45	31	715	7.6	67	24	717	8.9	59
4,000	29	635	6.6	54	31	634	7.2	41	30	629	0.2	60	31	634	7.0	45	31	630	0.9	54	31	633	1.9	59	22	635	3.0	58
5,000	29	561	−0.2	53	31	560	−1.3	55	30	555	− 6.5	51	31	560	−1.4	57	31	556	−6.3	49	31	559	−3.7	53	21	561	−2.9	58
6,000	29	494	−6.4	51	31	494	−9.1	68	30	487	−12.4	46	30	493	−8.6	64	30	488	−13.1	45	31	492	−9.5	57	21	494	−8.5	54
7,000	28	435	−11.9	40	31	434	−15.8	61	30	427	−19.6	46	30	433	−14.9	54	30	428	−20.1	43	31	431	−15.7	58	21	434	−14.3	----
8,000	26	381	−18.4	----	31	379	−22.3	----	30	372	−27.0	----	28	379	−21.5	----	30	373	−27.3	----	31	377	−22.3	----	21	380	−20.9	----
9,000	25	332	−25.5	----	29	330	−29.6	----	30	323	−34.6	----	28	330	−28.8	----	30	323	−34.7	----	31	328	−29.2	----	21	330	−28.0	----
10,000	22	289	−33.0	----	28	286	−37.1	----	30	280	−42.3	----	28	286	−36.1	----	30	280	−42.2	----	31	285	−36.8	----	21	287	−35.7	----
11,000	21	250	−40.6	----	28	247	−44.0	----	29	240	−49.2	----	26	247	−43.9	----	30	240	−49.2	----	31	246	−44.7	----	19	247	−44.4	----
12,000	21	216	−48.5	----	26	213	−50.1	----	27	206	−53.2	----	26	212	−50.2	----	30	206	−54.6	----	31	211	−52.3	----	19	212	−52.6	----
13,000	21	184	−56.4	----	25	182	−55.5	----	25	176	−54.7	----	24	182	−56.3	----	28	176	−57.0	----	30	180	−58.7	----	18	181	−60.3	----
14,000	20	157	−63.5	----	23	155	−60.7	----	24	151	−56.1	----	23	155	−62.0	----	25	151	−57.6	----	29	154	−63.5	----	16	154	−65.4	----
15,000	16	134	−69.2	----	16	132	−65.0	----	17	130	−57.4	----	14	132	−65.5	----	21	128	−58.8	----	25	130	−66.8	----	9	130	−68.2	----
16,000	7	113	−73.1	----	6	112	−67.3	----	15	111	−59.3	----	8	112	−68.0	----	16	110	−59.9	----	15	110	−67.4	----	5	111	−69.7	----
17,000									11	95	−59.5	----					8	94	−59.1	----	6	93	−67.6	----				
18,000									6	81	−57.7	----																

See footnotes at end of tables.

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidities in percent, obtained by radiosondes during July 1945*—Continued

Altitude (meters) m. s. l.	Havana, Cuba [1] (51 m.)				Huntington, W. Va. (172 m.)				International Falls, Minn. (343 m.)				Jackson, Miss. (97 m.)				Joliet, Ill. (178 m.)				Lake Charles, La. (5 m.)				Little Rock, Ark. (79 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface					28	907	20.1	89	30	973	16.5	80	30	1,004	24.6	86	30	995	19.7	77	31	1,014	25.7	90	31	1,006	25.3	78
500					28	960	22.5	70	30	956	17.2	73	30	959	24.0	77	30	958	20.7	63	31	959	23.9	80	31	959	24.3	66
1,000					28	906	19.3	69	30	901	14.8	68	30	906	21.4	75	30	904	17.4	62	31	906	20.9	75	31	906	20.8	66
1,500					28	854	15.8	70	30	849	11.5	68	30	854	18.3	74	30	852	13.9	62	31	855	18.3	69	31	855	17.8	60
2,000					28	805	12.7	64	30	799	8.2	67	30	806	15.4	71	30	803	11.0	60	31	806	15.6	64	31	806	15.0	57
2,500					28	759	9.8	61	30	753	5.3	62	30	760	12.7	64	30	756	8.5	52	31	760	13.1	60	31	760	12.4	50
3,000					28	714	7.1	56	30	708	2.7	57	30	716	10.0	61	30	712	6.3	42	31	716	10.4	58	31	715	9.3	48
4,000					28	632	2.4	47	30	625	−2.5	47	29	634	4.2	58	30	629	0.4	37	30	634	5.0	52	31	634	3.7	41
5,000					28	557	−3.3	50	30	550	−8.6	45	29	560	−1.5	58	29	555	−5.5	36	29	560	−0.5	48	31	560	−2.0	39
6,000					28	491	−9.6	47	30	483	−15.0	42	29	493	−7.0	56	29	488	−11.5	----	29	494	−6.4	51	31	492	−7.7	37
7,000					28	431	−15.7	44	30	423	−21.9	----	29	434	−13.0	54	29	428	−18.2	----	29	434	−12.3	51	31	433	−13.9	43
8,000					27	377	−22.4	----	30	368	−29.1	----	29	379	−19.6	50	29	373	−25.3	----	29	380	−19.0	50	31	378	−20.8	47
9,000					27	328	−29.9	----	30	319	−36.4	----	28	331	−26.7	----	28	324	−32.8	----	29	331	−25.9	----	31	330	−28.0	----
10,000					27	284	−37.0	----	30	276	−43.3	----	28	288	−34.3	----	28	281	−40.0	----	29	288	−33.4	----	31	287	−35.2	----
11,000					26	246	−45.8	----	29	238	−48.3	----	28	248	−42.3	----	27	242	−46.4	----	29	249	−41.3	----	31	248	−43.0	----
12,000					25	211	−53.3	----	28	204	−50.8	----	28	214	−50.4	----	27	208	−51.9	----	29	215	−49.4	----	31	213	−50.6	----
13,000					25	180	−58.7	----	28	175	−52.0	----	27	183	−58.3	----	26	178	−56.0	----	28	184	−57.4	----	31	182	−57.9	----
14,000					24	154	−62.9	----	25	150	−54.4	----	24	156	−64.4	----	23	151	−59.2	----	25	157	−63.9	----	28	155	−63.9	----
15,000					20	130	−65.3	----	23	128	−55.8	----	21	132	−69.3	----	18	129	−61.2	----	18	133	−68.8	----	18	132	−67.9	----
16,000					13	111	−65.2	----	21	110	−56.6	----	13	112	−71.0	----	11	110	−61.9	----	8	113	−71.4	----	12	112	−70.5	----
17,000					6	94	−63.9	----	15	93	−54.9	----	6	94	−68.8	----	6	94	−60.5	----					5	94	−69.7	----
18,000									14	80	−54.4	----																
19,000									10	68	−54.0	----																
20,000									5	58	−52.6	----																

Altitude (meters) m. s. l.	Louisville, Ky. (165 m.)				Mazatlan, Mexico (80 m.)				Medford, Oreg. (409 m.)				Merida, Mexico (27 m.)				Miami, Fla. (4 m.)				Nashville, Tenn. (180 m.)				North Platte, Nebr. (849 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	996	22.6	76	25	1,003	28.0	78	30	966	28.9	29	31	1,011	27.3	74	31	1,018	25.5	85	31	995	24.8	69	30	918	21.6	74
500	31	959	22.9	63	25	957	24.6	74	30	957	28.2	30	31	959	24.6	71	31	962	23.4	83	31	959	24.1	63				
1,000	31	906	19.5	63	25	904	22.9	67	30	904	24.4	33	31	906	22.0	69	31	908	20.5	78	31	906	20.9	64	30	903	23.0	63
1,500	31	854	15.7	63	25	853	20.3	67	30	853	20.6	38	31	855	19.0	70	31	857	17.9	74	31	855	17.6	62	30	852	21.2	56
2,000	31	805	12.8	55	25	805	17.5	62	30	804	17.0	44	31	806	15.8	67	31	808	15.3	71	31	806	14.9	55	30	804	18.2	54
2,500	31	758	10.4	46	25	759	14.7	57	30	759	13.8	45	31	760	12.8	60	31	762	12.6	66	31	760	12.0	53	30	758	14.7	55
3,000	31	714	8.0	38	25	714	11.8	56	30	714	10.6	44	31	716	9.6	57	31	718	9.9	60	31	715	9.1	50	30	714	11.2	55
4,000	31	632	2.4	38	24	634	5.3	58	30	633	4.1	40	29	634	3.8	53	31	636	4.1	60	31	633	3.5	43	30	633	3.9	53
5,000	31	557	−3.6	39	22	560	−1.2	61	28	559	−2.2	33	29	560	−1.7	53	31	562	−1.5	64	31	559	−2.4	34	30	559	−2.6	43
6,000	30	490	−9.5	39	20	493	−6.9	61	28	492	−9.4	33	27	493	−7.6	55	31	494	−7.3	66	31	492	−8.0	----	30	492	−8.8	43
7,000	30	431	−15.7	----	18	434	−12.5	60	28	432	−16.9	32	26	433	−13.9	67	31	435	−13.0	60	30	433	−14.0	----	30	432	−15.2	43
8,000	30	376	−22.6	----	15	380	−19.2	----	28	377	−25.0	----	26	379	−20.2	66	31	381	−19.7	57	30	379	−20.9	----	30	378	−22.2	----
9,000	29	327	−29.9	----	15	331	−26.5	----	27	328	−32.5	----	25	330	−27.4	----	30	332	−27.0	----	29	330	−28.0	----	29	329	−29.5	----
10,000	28	284	−37.2	----	14	288	−34.0	----	27	284	−40.1	----	25	287	−35.0	----	30	288	−34.7	----	29	287	−35.5	----	29	285	−37.1	----
11,000	28	245	−44.7	----	14	249	−41.9	----	27	245	−47.0	----	25	248	−43.0	----	29	249	−43.1	----	29	248	−43.4	----	29	246	−44.7	----
12,000	27	211	−51.8	----	13	214	−49.8	----	26	210	−52.0	----	21	213	−51.1	----	29	214	−51.7	----	29	213	−51.2	----	28	212	−51.2	----
13,000	26	180	−57.3	----	10	184	−57.5	----	23	180	−56.2	----	15	182	−58.7	----	29	183	−59.9	----	29	182	−58.1	----	26	181	−56.6	----
14,000	25	154	−61.4	----	6	156	−65.0	----	19	154	−58.8	----	6	155	−66.0	----	25	156	−66.7	----	26	155	−64.0	----	22	155	−61.5	----
15,000	17	131	−64.9	----					13	131	−60.7	----					15	132	−70.6	----	15	132	−68.0	----	15	132	−65.6	----
16,000	11	112	−66.8	----					6	112	−61.2	----					6	112	−72.6	----	10	111	−70.9	----	10	112	−66.6	----
17,000	7	95	−65.8	----																					5	95	−65.6	----
18,000	5	80	−63.7	----																					5	80	−62.9	----

Altitude (meters) m. s. l.	Oakland, Calif. (2 m.)				Ogden, Utah (1,355 m.)				Oklahoma City, Okla. (391 m.)				Omaha, Nebr. (308 m.)				Phoenix, Ariz. (339 m.)				Pittsburgh, Pa. (382 m.)				Portland, Maine (20 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	1,013	17.5	76	30	865	24.5	40	30	970	24.9	77	31	979	23.9	69	31	969	33.2	35	31	972	21.7	74	31	1,014	17.2	91
500	31	956	19.1	57					30	958	25.3	72	31	958	23.6	63	31	952	34.0	29	31	960	21.5	72	31	959	19.5	74
1,000	31	902	24.4	26					30	905	22.8	67	31	904	20.7	61	31	901	31.1	29	31	905	18.8	70	31	905	17.2	64
1,500	31	852	22.5	22	30	851	25.3	31	30	854	19.6	64	31	853	17.7	61	31	852	27.1	31	31	853	15.2	72	31	853	13.9	68
2,000	31	804	19.6	21	30	803	22.2	30	30	805	16.7	57	31	804	14.9	56	31	804	23.0	34	31	804	11.7	69	31	804	10.7	67
2,500	31	758	16.3	19	30	758	18.0	32	30	760	13.8	54	31	758	11.7	54	31	759	18.8	38	31	757	8.8	62	31	757	8.0	60
3,000	31	714	12.7	20	30	714	13.6	35	30	715	11.0	46	31	714	8.7	50	31	715	14.7	41	31	712	6.2	55	31	712	5.3	59
4,000	31	633	5.7	22	30	633	5.3	38	29	634	4.9	39	31	632	2.8	45	30	635	6.9	45	31	630	0.5	50	30	629	0.1	51
5,000	31	559	−1.6	----	30	559	−2.6	45	29	560	−1.2	37	30	558	−3.5	40	30	561	−0.6	50	31	556	−4.4	37	30	554	−5.8	49
6,000	31	492	−8.7	----	30	492	−10.0	49	28	493	−7.0	33	30	491	−9.3	37	30	494	−7.1	47	31	489	−10.4	37	29	487	−11.8	50
7,000	31	432	−16.1	----	30	432	−16.8	44	28	434	−13.3	----	30	431	−15.8	46	29	435	−13.1	45	31	428	−16.8	43	29	427	−18.4	54
8,000	31	378	−23.6	----	29	378	−23.7	----	28	379	−20.4	----	29	377	−22.4	----	29	381	−19.7	----	31	374	−23.6	----	29	373	−25.6	----
9,000	31	329	−30.7	----	27	328	−30.9	----	27	330	−28.1	----	29	328	−29.7	----	28	332	−26.8	----	29	326	−30.2	----	29	324	−33.0	----
10,000	31	285	−37.6	----	27	285	−38.4	----	25	287	−35.3	----	29	285	−37.0	----	26	288	−34.2	----	29	283	−37.3	----	29	281	−40.7	----
11,000	30	246	−44.1	----	27	246	−45.5	----	24	248	−42.8	----	29	246	−44.2	----	24	249	−41.3	----	29	244	−44.9	----	28	242	−48.4	----
12,000	29	212	−49.3	----	27	211	−51.8	----	24	214	−50.4	----	29	211	−51.1	----	23	214	−48.9	----	29	210	−51.5	----	28	207	−55.1	----
13,000	28	181	−54.5	----	25	180	−57.5	----	25	182	−57.7	----	27	181	−56.1	----	22	184	−56.1	----	27	179	−56.4	----	27	176	−59.0	----
14,000	24	155	−59.4	----	24	154	−61.9	----	21	156	−63.6	----	27	154	−59.6	----	19	157	−62.7	----	27	153	−59.1	----	22	150	−60.0	----
15,000	23	132	−63.5	----	16	130	−65.8	----	20	132	−68.6	----	24	131	−62.1	----	16	133	−67.4	----	22	131	−61.5	----	16	128	−60.2	----
16,000	18	112	−65.4	----	6	110	−65.9	----	11	112	−71.7	----	16	111	−64.0	----	8	112	−71.6	----	16	111	−62.9	----	12	110	−61.2	----
17,000	11	95	−64.9	----					6	95	−68.2	----	10	95	−64.4	----					5	95	−62.6	----	7	93	−60.4	----
18,000	8	80	−63.4	----									6	80	−60.7	----												
19,000	7	68	−61.4	----																								

See footnotes at end of tables.

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidities in percent, obtained by radiosondes during July 1945*—Continued

Altitude (meters) m. s. l.	Rapid City, S. Dak. (981 m.)				St. Louis, Mo. (171 m.)				St. Paul, Minn. (225 m.)				San Antonio, Tex. (240 m.)				San Juan, P. R. (15 m.)				Santa Maria, Calif. (71 m.)				Sault Ste. Marie, Mich. (221 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	904	20.4	67	31	996	23.2	71	31	988	20.6	70	31	986	28.5	65	31	1,015	26.2	85	31	1,005	15.3	86	26	989	13.6	86
500					31	959	22.8	62	31	958	19.8	64	31	957	27.0	65	31	961	22.8	83	31	956	16.2	81	26	958	15.5	71
1,000	31	902	20.5	65	31	905	19.3	63	31	903	17.0	64	31	905	23.6	68	31	907	19.4	80	31	902	24.4	31	26	902	13.5	68
1,500	31	852	20.3	51	31	854	15.6	64	31	851	13.7	64	31	854	20.2	69	31	856	16.7	75	31	852	23.5	28	26	850	10.2	70
2,000	31	803	17.0	52	31	805	13.0	50	31	802	10.9	61	31	805	16.8	67	31	806	14.2	65	31	804	20.5	30	26	800	6.8	71
2,500	31	758	13.4	54	31	758	10.9	43	31	755	8.3	51	31	760	14.0	56	31	760	12.1	53	31	759	16.8	31	26	753	3.9	63
3,000	31	713	9.7	53	31	714	8.3	42	31	710	5.4	47	31	716	11.3	48	31	715	9.5	47	31	715	12.9	34	26	708	1.6	58
4,000	31	632	2.5	47	30	632	2.7	43	31	628	−0.6	44	31	634	5.5	47	31	634	3.6	37	31	634	5.4	34	26	625	−3.6	46
5,000	30	557	−4.5	39	29	558	−3.6	47	31	553	−6.5	39	31	560	−0.1	41	31	559	−2.1	35	31	560	−1.4	----	26	550	−9.3	----
6,000	30	490	−10.9	41	28	491	−9.3	41	31	486	−13.2	36	31	494	−5.9	38	31	492	−8.2	36	31	493	−8.2	----	26	482	−15.6	----
7,000	30	430	−17.6	----	26	430	−15.9	----	31	426	−19.8	----	31	434	−11.7	35	31	433	−14.5	36	31	433	−15.2	----	26	422	−22.8	----
8,000	30	375	−24.8	----	24	376	−23.0	----	31	372	−26.8	----	31	381	−18.3	40	30	379	−21.8	----	31	378	−22.3	----	23	367	−29.8	----
9,000	30	326	−32.0	----	23	327	−30.4	----	31	323	−33.9	----	31	332	−25.4	----	30	329	−29.4	----	31	329	−29.8	----	22	318	−37.5	----
10,000	29	283	−39.3	----	20	284	−38.2	----	31	279	−40.7	----	31	289	−33.0	----	30	286	−37.4	----	31	286	−36.6	----	22	274	−44.4	----
11,000	29	243	−46.5	----	20	244	−45.9	----	30	240	−47.2	----	31	250	−41.1	----	29	247	−45.6	----	31	246	−42.9	----	21	236	−49.2	----
12,000	29	209	−52.4	----	20	210	−52.4	----	28	206	−51.8	----	30	215	−49.0	----	29	212	−53.9	----	31	212	−49.0	----	21	202	−51.6	----
13,000	28	179	−57.0	----	18	179	−56.8	----	27	176	−54.7	----	30	184	−56.6	----	28	180	−61.4	----	31	181	−55.2	----	21	173	−53.2	----
14,000	26	153	−60.1	----	14	153	−60.5	----	27	151	−56.9	----	30	157	−63.6	----	25	153	−67.0	----	30	155	−61.2	----	20	148	−54.1	----
15,000	19	130	−62.3	----	11	130	−64.5	----	22	129	−59.3	----	24	133	−70.0	----	16	130	−70.1	----	29	132	−66.1	----	17	127	−55.5	----
16,000	12	110	−63.9	----	8	111	−65.5	----	15	110	−59.9	----	13	113	−73.0	----	10	109	−73.2	----	24	112	−69.7	----	17	108	−56.4	----
17,000	9	94	−62.6	----	----	----	----	----	8	93	−58.2	----	----	----	----	----	----	----	----	----	18	94	−68.8	----	10	92	−54.7	----
18,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	13	80	−66.1	----	9	79	−54.7	----
19,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	10	68	−63.8	----	5	67	−52.9	----
20,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	8	57	−61.2	----	----	----	----	----
21,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5	49	−59.5	----	----	----	----	----

Altitude (meters) m. s. l.	Spokane, Wash. (598 m.)				Swan Island, W. I. (10 m.)				Tacubaya, Mexico[1] (2,306 m.)				Tampa, Florida (3 m.)				Tatoosh Island, Wash. (31 m.)				Toledo, Ohio (191 m.)				Washington, D. C. (25 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	30	943	26.5	28	31	1,013	26.6	85	----	----	----	----	31	1,018	25.2	88	31	1,016	12.2	92	31	993	19.5	78	31	1,014	23.1	84
500					31	959	23.6	83	----	----	----	----	31	962	23.3	81	31	961	13.0	73	31	958	20.3	65	31	960	21.3	76
1,000	30	901	24.4	26	31	905	20.7	77	----	----	----	----	31	908	20.5	77	31	905	13.2	53	31	904	17.4	64	31	906	18.8	71
1,500	30	851	20.1	30	31	854	17.8	70	----	----	----	----	31	857	17.5	75	31	853	11.5	46	31	852	14.1	65	31	854	15.7	70
2,000	30	802	15.6	35	31	805	15.1	64	----	----	----	----	31	808	14.5	72	31	802	9.2	43	31	803	10.9	62	31	805	12.6	70
2,500	30	756	10.9	41	31	759	12.7	55	----	----	----	----	30	762	11.8	68	31	756	6.3	39	31	756	8.1	55	31	759	9.7	62
3,000	30	712	6.7	42	31	714	9.7	49	----	----	----	----	30	717	9.1	65	31	710	3.6	37	31	711	5.8	46	31	714	6.8	60
4,000	30	629	−0.2	37	31	633	3.8	43	----	----	----	----	30	635	3.5	65	30	628	−1.6	36	31	629	0.5	42	31	632	1.4	50
5,000	30	554	−6.4	37	31	559	−2.3	41	----	----	----	----	28	561	−2.1	65	30	553	−7.9	37	31	554	−5.3	39	31	557	−4.1	44
6,000	30	487	−13.1	36	31	492	−8.3	40	----	----	----	----	27	494	−7.7	64	30	485	−14.2	38	31	488	−11.1	42	30	490	−9.9	48
7,000	30	426	−20.1	37	31	432	−14.5	45	----	----	----	----	27	434	−13.4	65	30	425	−21.6	----	31	428	−18.0	47	30	430	−16.3	47
8,000	30	372	−27.3	----	31	378	−21.1	----	----	----	----	----	25	380	−20.0	66	30	370	−29.0	----	31	373	−25.0	----	28	376	−23.3	----
9,000	30	323	−35.0	----	31	329	−28.7	----	----	----	----	----	22	331	−27.0	----	30	321	−36.6	----	30	324	−32.1	----	27	327	−30.6	----
10,000	30	280	−42.4	----	31	286	−36.7	----	----	----	----	----	20	288	−34.6	----	26	278	−43.2	----	30	281	−39.3	----	26	284	−37.9	----
11,000	30	240	−49.3	----	31	246	−45.4	----	----	----	----	----	18	248	−42.7	----	24	239	−49.7	----	29	242	−46.0	----	26	244	−45.8	----
12,000	29	206	−53.4	----	31	212	−54.2	----	----	----	----	----	18	214	−50.9	----	22	205	−54.0	----	29	208	−51.7	----	26	210	−53.0	----
13,000	29	176	−55.7	----	29	180	−62.6	----	----	----	----	----	17	183	−58.7	----	21	175	−55.7	----	28	178	−54.8	----	26	179	−58.6	----
14,000	28	150	−56.0	----	24	153	−69.2	----	----	----	----	----	12	155	−65.3	----	20	150	−55.0	----	26	152	−57.3	----	20	153	−62.2	----
15,000	25	128	−57.2	----	12	129	−73.9	----	----	----	----	----	8	132	−69.6	----	19	128	−55.1	----	24	130	−59.8	----	16	130	−64.6	----
16,000	18	110	−57.3	----	----	----	----	----	----	----	----	----	----	----	----	----	15	110	−55.4	----	16	111	−61.2	----	7	110	−63.0	----
17,000	13	93	−57.5	----	----	----	----	----	----	----	----	----	----	----	----	----	12	93	−55.9	----	12	94	−60.9	----	6	93	−63.0	----
18,000	9	80	−57.2	----	----	----	----	----	----	----	----	----	----	----	----	----	9	80	−55.6	----	8	80	−58.9	----	----	----	----	----
19,000	6	68	−56.2	----	----	----	----	----	----	----	----	----	----	----	----	----	7	68	−54.8	----	5	68	−56.6	----	----	----	----	----

[1] Data not yet received.

NOTE.—All observations scheduled between 10 p. m. and midnight, E. S. T. (0300 and 0500, G. C. T.), except at Mazatlan and Merida, where they are taken near 9 p. m. E. S. T. (0200 G. C. T.).

"Number of observations" refers to pressure only. (In a few cases temperature or humidity data may be missing for one or more levels of some observations.) Relative humidity data are not published for levels having a corresponding mean temperature below −20° C.

All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the values occurring below the operating range of the humidity element. For explanation of the adjustment see article entitled "Curve Method for Obtaining Monthly Means of Relative Humidity," p. 241, MONTHLY WEATHER REVIEW, December 1944.

None of the means included in these tables are based on less than 15 surface or 5 standard level observations.

Raob data for Havana, Cuba, will appear in a later issue.

TABLE 2.—*Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during July 1945. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*

Altitude (meters) m. s. l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,630 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (512 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (132 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (152 m.)			Denver, Colo. (1,627 m.)			El Paso, Tex. (1,196 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	114	2.4	31	229	1.8	31	226	1.2	31	156	0.5	31	258	1.6	31	317	3.7	31	128	6.0	29	242	2.3	30	225	2.4	28	161	2.1	31	276	0.7	31	35	2.3	31	125	2.1
500							31	253	1.2										31	135	7.1	29	255	3.3	30	213	5.1	28	169	5.5	31	277	1.8						
1,000	31	123	3.2				31	244	1.2				31	300	1.6	31	325	3.5	31	139	5.8	28	246	4.2	29	220	6.0	26	191	4.2	30	281	2.4						
1,500	31	126	2.8				30	256	1.3	31	183	1.0	30	269	2.7	31	316	3.0	30	157	3.7	26	248	5.3	28	234	6.2	24	203	3.7	30	300	3.1				31	119	2.0
2,000	29	139	2.1	31	215	2.6	26	288	1.2	31	228	1.5	29	278	3.8	31	282	2.6	28	154	2.3	23	252	6.6	23	250	6.6	22	212	2.7	28	294	4.3	31	41	3.2	31	113	2.2
2,500	25	152	2.4	31	197	2.7	21	299	2.3	31	258	2.4	25	267	6.9	31	273	4.4	24	129	1.6	18	264	7.2	21	257	8.0	21	210	3.2	21	298	4.4	30	53	2.5	30	99	2.2
3,000	22	159	1.5	31	189	1.8	19	296	2.4	30	275	4.1	25	273	8.6	31	261	6.0	23	98	6.7	16	272	8.0	15	247	9.2	18	208	2.3	18	285	5.9	29	50	1.6	28	82	2.5
4,000	18	242	0.5	31	113	0.8	14	268	4.5	28	278	9.1	21	281	11.4	29	252	9.0	22	115	0.7	12	285	10.0				15	223	3.0				28	311	2.9	23	69	2.7
5,000				31	360	1.4				27	274	12.8	19	283	12.8	27	248	11.0	22	135	1.2							13	221	3.3				25	288	6.3	12	82	2.6
6,000				31	336	1.8				26	270	15.4	16	277	15.4	25	248	12.0	21	127	1.4							13	220	3.8				17	279	8.9			
8,000				28	248	4.0				20	269	18.2	13	283	18.2	17	245	18.0	15	83	3.5													11	272	11.7			
10,000				20	241	7.6				14	267	23.5							13	90	5.3																		
12,000				15	254	10.8																																	
14,000				12	258	8.0																																	

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,413 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (573 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (410 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (194 m.)			New York, N. Y. (15 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	243	1.7	31	327	1.9	30	189	1.6	31	293	2.6	30	137	2.8	31	274	2.1	31	160	1.9	30	116	0.2	31	299	2.7	31	146	3.6	26	201	2.0	31	314	1.6	27	185	1.8
500							30	202	2.0				30	177	3.9	31	281	2.9				30	38	0.7	31	303	2.9	31	138	5.2	26	209	3.6	31	35.3	2.1	27	204	3.1
1,000							30	226	2.5	31	284	2.9	30	200	4.0	31	276	3.0	31	174	3.0	28	14	1.3	31	311	2.9	30	134	4.3	22	214	2.5	30	307	1.8	22	244	4.4
1,500				31	321	2.3	30	244	2.9	31	274	3.2	29	222	3.9	30	271	3.4	31	179	2.8	25	10	1.4	31	305	2.1	29	142	2.7	16	233	1.2	29	303	2.1	22	257	5.3
2,000	31	240	2.0	31	315	2.9	25	262	4.5	29	261	3.6	28	223	3.6	29	285	5.1	31	202	3.2	20	359	1.7	31	258	1.6	27	148	2.0	13	278	1.3	26	292	2.6	19	263	6.8
2,500	31	242	2.7	31	299	3.4	21	269	5.5	27	260	6.0	25	223	3.4	21	290	6.8	31	212	4.0	17	61	1.4	31	230	3.0	28	155	2.0	10	280	1.9	26	294	3.5	17	267	7.9
3,000	31	229	3.0	31	285	3.2	16	277	5.7	26	262	7.3	23	229	2.7	16	292	8.6	31	229	4.0	17	56	2.2	30	218	4.1	27	154	2.2				24	306	4.5	11	270	7.2
4,000	30	239	3.5	30	273	3.6	12	271	6.2	21	271	10.8	13	220	2.0				31	241	3.6	15	34	3.4	28	234	6.7	23	157	3.0				19	293	5.7			
5,000	29	230	4.6	27	266	4.9				14	270	12.2	11	191	1.9				29	240	3.5	10	340	3.7	27	233	9.6	21	129	2.5				14	294	6.7			
6,000	21	237	5.8	19	251	5.5				12	282	12.8							28	219	3.8				27	240	11.2	17	125	2.3				13	299	8.7			
8,000	15	236	7.2																22	225	5.8				24	241	13.2	12	87	2.4				11	299	11.6			
10,000	11	237	9.8																21	220	9.3				15	235	15.7												
11,000																			16	219	12.9																		
12,000																			11	218	8.9																		

Altitude (meters) m. s. l.	Oakland, Calif. (8 m.)			Oklahoma, City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Louis, Mo. (181 m.)			St. Paul, Minn. (225 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (15 m.)			Saulte St. Marie, Mich. (225 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (603 m.)			Washington, D. C. (24 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	289	5.7	31	166	3.1	31	176	1.9	31	275	1.5	31	28	1.5	31	253	0.7	30	258	1.3	30	102	2.8	28	275	4.1	31	270	3.0	31	285	2.3	31	229	2.3	28	179	2.5
500	31	283	4.3	31	166	3.4	31	180	2.7	31	269	2.7				31	291	2.1	30	257	1.7	30	113	3.3	28	282	3.3	31	272	3.9	31	302	1.8				28	194	2.4
1,000	31	269	2.7	31	171	3.4	31	203	3.8	31	264	3.6	31	26	1.5	31	288	2.1	30	259	3.0	30	108	3.5	27	276	1.5	30	273	4.6	31	295	1.2	31	228	3.2	27	221	2.2
1,500	30	255	1.7	31	166	2.7	28	212	4.2	31	256	3.5	31	42	1.0	31	285	2.3	27	264	4.8	29	108	2.7	26	311	1.5	28	256	4.3	28	318	0.9	31	234	3.7	26	248	2.4
2,000	30	226	2.3	29	169	2.1	26	244	5.0	31	250	3.7	31	311	1.0	30	301	3.2	24	269	6.2	28	121	2.2	26	291	0.7	26	263	4.2	26	272	1.3	31	237	4.7	24	265	3.8
2,500	30	213	3.3	26	163	1.1	26	265	6.4	31	244	2.6	29	280	2.6	28	304	4.0	19	282	7.3	26	123	1.4	25	207	0.9	23	275	5.4	24	285	2.2	30	232	5.1	19	274	5.5
3,000	30	216	3.9	21	122	1.2	25	276	7.6	31	253	2.0	29	285	5.0	25	304	5.8	17	283	6.8	23	160	1.3	25	189	1.5	22	285	5.7	21	275	3.2	30	237	6.4	18	287	6.9
4,000	28	222	6.0	19	359	1.3	25	295	10.9	31	166	0.6	22	268	7.6	23	298	9.1	14	292	10.3	19	220	1.1	25	176	3.1	20	283	6.2	19	266	5.2	27	242	9.5	11	288	8.7
5,000	28	220	6.1	12	346	1.7	19	294	13.2	29	151	1.2	17	280	10.3	18	300	10.1	12	313	10.8	13	257	2.2	22	186	4.0	18	290	7.0	18	257	8.0	23	250	12.3	10	276	11.0
6,000	26	223	5.7	11	308	2.4	18	291	13.8	27	167	3.5	15	278	12.8	15	302	11.8				12	270	2.2	20	184	3.7	16	293	10.0	18	262	9.8	22	252	14.4			
8,000	25	228	7.1				12	294	14.6	24	162	3.2	10	280	14.4	11	292	11.6							18	198	4.9	13	292	10.2	17	263	12.5	19	253	17.9			
10,000	24	238	11.3							20	183	5.2													14	210	9.6				15	258	15.0	13	264	21.5			
12,000	17	232	16.2							15	213	7.1																		11	253	16.2						
14,000	10	238	19.6																																			

TABLE 3.—*Maximum free-air wind velocities (m. p. s.) for different sections of the United States based on pilot balloon observations during July 1945*

Section	Surface to 2,500 meters (m. s. l.)					Above 2,500 to 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station
Northeast [1]	35.6	WSW.	2,436	11	Hartford, Conn.	45.6	WSW.	4,245	11	Boston, Mass.	85.0	SW.	11,020	11	Boston, Mass.
East-Central [2]	28.6	WSW.	2,042	9	Cincinnati, Ohio	27.0	WNW.	5,000	11	Richmond, Va.	41.0	WNW.	13,269	11	Nashville, Tenn.
Southeast [3]	20.7	WSW.	1,053	29	Spartanburg, S. C.	29.0	E.	3,168	20	Birmingham, Ala.	30.1	W.	10,102	7	Spartanburg, S. C.
North-Central [4]	32.8	SW.	2,042	26	Bismarck, N. D.	34.7	SW.	4,092	18	Williston, N. Dak.	52.0	SW.	8,742	2	Alpena, Mich.
Central [5]	30.8	S.	1,790	30	Dodge City, Kans.	31.1	WNW.	4,711	5	Omaha, Nebr.	92.8	W.	{19,908 20,193	26	Goodland, Kans.
South-Central [6]	29.0	NW.	1,979	8	Meridian Miss.	23.4	WNW.	3,943	9	Little Rock, Ark.	44.0	W.	12,981	6	Tulsa, Okla.
Northwest [7]	43.2	W.	1,774	4	Pocatello, Idaho	42.0	SW.	5,000	25	Spokane, Wash.	86.8	WNW.	10,738	26	Spokane, Wash.
West-Central [8]	25.6	SW.	2,079	22	Modena, Utah	45.6	SW.	3,184	17	Salt Lake City, Utah.	50.0	SSW.	12,587	23	Cheyenne, Wyo.
Southwest [9]	33.1	E.	1,846	1	Albuquerque, N. Mex.	23.3	NW.	2,510	5	Sandburg, Calif.	64.2	SW.	13,053	9	Las Vegas, Nev.

[1] Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio
[2] Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.
[3] South Carolina, Georgia, Florida, and Alabama.
[4] Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.
[5] Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.
[6] Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.
[7] Montana, Idaho, Washington, and Oregon.
[8] Wyoming, Colorado, Utah, northern Nevada, and northern California.
[9] Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

LATE REPORT FOR SWAN ISLAND, WEST INDIES

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidities in percent obtained by radiosondes during June 1945*

STATION AND ELEVATION IN METERS ABOVE SEA LEVEL

Altitude (meters) m. s. l.	Swan Island, West Indies (10 m.)				Altitude (meters) m. s. l.	Swan Island, West Indies (10 m.)			
	Number of observations	Pressure	Temperature	Relative humidity		Number of observations	Pressure	Temperature	Relative humidity
Surface	30	1,012	26.7	84	7,000	30	433	−13.0	------
500	30	958	23.5	83	8,000	30	379	−19.1	------
1,000	30	904	20.6	77	9,000	29	330	−26.5	------
1,500	30	853	18.1	69	10,000	28	287	−34.2	------
2,000	30	804	15.9	58	11,000	26	248	−42.2	------
2,500	30	758	13.6	50	12,000	26	213	−50.3	------
3,000	30	714	10.7	47	13,000	25	183	−58.3	------
4,000	30	633	4.8	45	14,000	21	155	−65.6	------
5,000	30	559	−1.2	45	15,000	18	132	−72.1	------
6,000	30	492	−7.4	45	16,000	7	111	−76.2	------

RIVER STAGES AND FLOODS

By C. R. JORDAN

Precipitation during July was very irregular. Rainfall was generally above normal over the eastern half of the country, except in the Lakes region and a strip extending southwestward through northern Illinois, southern Iowa, and northern Missouri. It was also heavy in northeastern Nevada, southern Idaho, northern Utah, and north-central Arizona. Elsewhere over the western part of the United States precipitation was mostly light, with no measurable rainfall in parts of California and Oregon. The month ended with a torrential rainstorm in the vicinity of Washington, D. C., where 6 inches of rain fell in 50 minutes.

By far the most important flooding of the month was the local overflow of smaller streams that resulted from heavy concentrations of rainfall in the region from Virginia to Maine and did considerable damage. Some overflow was reported in the West-Central States, with near record stages recorded for a few of the smaller streams.

Atlantic Slope drainage.—Rainfall during July was frequent and above normal over the entire Atlantic coastal area. Local concentrations produced destructive and record-breaking stages at scattered locations throughout the area.

A severe downpour in Rutland County, Vt., on July 20 and a series of cloudbursts over western Berkshire County, Mass., on July 22 resulted in the loss of two lives and caused considerable damage to highways, bridges, crops, and livestock. The United States Geological Survey reports that Rathbun Brook near Hancock, Mass., with a drainage area of slightly less than 1 square mile, indicated a discharge of more than 3,200 c. f. s. per square mile. This is believed to be the highest rate of flow of record in New England on a per-square-mile basis. The maximum discharge of record was measured on the Poultney River below Fair Haven, Vt.

Albany, N. Y., experienced the wettest July since 1871. Much of the precipitation occurred in thunderstorms of cloudburst proportion, and numerous flash floods were reported during the month. The following report of floods occurring on July 22 was received from the Official in Charge, Weather Bureau Office, Albany, N. Y.:

Flash floods occurred in the Lake Section of Rensselaer County in the small streams of Rensselaer and Columbia Counties during the afternoon and evening of July 22, 1945, as a result of intense thundershowers which occurred from the city of Albany eastward during the period from about noon to between 4 and 5 p. m. The greatest official measurement of rain was 5.06 inches at the Mount Lebanon station which is located just south of West Lebanon, but unofficial reports support the belief that much heavier falls occurred elsewhere. There appear to have been at least two areas of intense rainfall: the Burden Lake-Glass Lake-Taborton section and a strip from about Brainard Station on Highway 20 east-northeastward over Stephentown and Hancock toward Lanesboro, Mass. Dry creek beds became raging torrents; lake levels were raised 2 or 3 feet; headwater creeks rose to record heights, washing out bridges, highways, and railroads, and wrecking farmlands. It has been estimated that damage from this storm will approach, if not exceed, $3,500,000, not counting the permanent damage to farmlands nor the current crop damage accurately. Three lives were lost in the floods, two at Hancock, Mass., and one, a child, at Garfield, N. Y.

An intense storm occurred between 7 and 11 p. m. on July 9 in the Easton, Pa.-Phillipsburg, N. J., area. Official measurements record 8.54 inches of rain at Phillipsburg and 6.20 inches at Easton. The storm was accompanied by intense lightning, and large damage from hail and wind was reported in suburban areas. The Monocacy, Bushkill, Catassaqua, and Hokendauqua Creeks overflowed their banks and caused considerable damage by inundation and soil erosion. Rivers in the area did not overflow.

Exceptionally heavy rains in northeastern New Jersey during the period July 15 to 23, and particularly from two storms when the rainfall intensity was the greatest, namely, July 18 and July 22–23, produced new flood records in Pasack Brook, Ramapo River, Saddle River, and Weasel Brook. The Passaic River at Paterson, N. J., reached a stage just exceeding that of the flood of March 1936, but considerably below that of the historic flood of October 1903. However, damage from flooding and washing was far greater than in March 1936.

Flood stages on the larger rivers were exceeded only slightly at a few scattered stations.

Upper Mississippi and Missouri Basins.—Excessive rain occurring in the Root and Whitewater River Valleys on July 20 and 21 caused minor flash floods in those drainage areas, with bankful or flood stages at Houston and Beaver, Minn., on July 21.

The Solomon River overflowed twice at Beloit, Kans., with a crest on July 5 that was only slightly above bankful and a second crest of 27.83 feet, 9.8 feet above bankful, on July 19. There was no resulting overflow of this river at Minneapolis, but Niles reached a crest of 28.25 feet, 4.25 feet above flood stage on July 21. Overflow of the Smoky Hill River occurred below the mouth of the Solo-

mon, with crest stages from 2 to nearly 4 feet above bankful at Abilene and Enterprise, Kans.

Light overflow occurred along the Republican River and in the Kansas River from Ogden to Lawrence, Kans.

Rather serious overflow occurred along the Osage River, cresting on July 1 at Quenemo and on July 6 at Trading Post. At Ottawa, a crest of 29.6 feet, 5.6 feet above bankful, occurred on July 2, and much of the lower part of the city was flooded. A second and slight overflow crested at Ottawa on July 10, resulting in an overflow below Ottawa almost as great as the earlier one, the crest period extending from July 10 to July 12. At Quenemo a second and slight overflow occurred on July 14.

The Missouri River at and below Waverly, Mo., exceeded flood stage slightly during the first few days of the month.

White, Red, and Arkansas Basins.—The Black and White Rivers in Arkansas fell below flood stage during the month from crests that occurred in June. The White River at Clarendon, Ark., fell below flood stage on July 18 for the first time since February 27; a total of 142 days above flood stage.

Rains averaging from 3 to 5 inches fell in the upper and middle portions of the Neosho River Basin on June 30, while showers ranging from 1½ to 2 inches fell along the lower Neosho and its tributaries on July 1. The latter rains caused the tributaries of the Neosho to raise the main stream to above flood stage in the vicinity of Oswego before the crest from the middle portion of the basin arrived. This distribution of rain also caused a lower but longer period of flood in the lower part of the Neosho.

Minor flooding was reported in the Sulphur and Red Rivers in Texas and Louisiana.

Lower Mississippi and Atchafalaya Basins.—The St. Francis River crested at Fisk, Mo. at 22 feet from July 1–4, and at St. Francis, Ark., the crest was 19.5 on July 6 and 7. At Parkin, Ark., and below, the river fell throughout July. The lower Mississippi and Atchafalaya Rivers were a little above flood stage during the early part of the month.

West Gulf of Mexico Drainage.—Light to moderate overflow occurred along the Sabine and Trinity Rivers in eastern Texas.

FLOOD-STAGE REPORT FOR JULY 1945

[All dates in July unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
	Feet			*Feet*	
Lehigh: Lehighton, Pa.	7	19	21	9.0	19
Roanoke:					
Weldon, N. C.	31	18	19	33.3	18
Williamston, N. C.	10	22	24	10.3	23
		31	Aug. 5	10.4	Aug. 3
Fishing Creek: Enfield, N. C.	14	19	22	15.1	21
Tar:					
Rocky Mount, N. C.	9	18	23	10.4	22
Tarboro, N. C.	18	21	26	21.4	24
Greenville, N. C.	13	22	28	14.9	26
Neuse:					
Neuse, N. C.	14	17	23	18.9	21
Smithfield, N. C.	13	18	25	17.5	22-23
Goldsboro, N. C.	14	25	29	14.7	27
Cape Fear: Lock No. 2, Elizabethtown, N. C.	20	18	19	20.5	19
Saluda: Pelzer, S. C.	6	15	16	6.2	15
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Root: Houston, Minn.	15	21	21	15.0	21
Whitewater: Beaver, Minn.	7	21	21	7.7	21
Illinois: Beardstown, Ill.	14	May 15	4	19.4	May 24
				15.6	June 14
				17.6	June 22

See footnotes at end of table.

FLOOD-STAGE REPORT FOR JULY 1945—Continued

[All dates in July unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Upper Mississippi Basin—Continued					
	Feet			*Feet*	
Mississippi:					
Hannibal, Mo.	13	1	6	13.8	3
Louisiana, Mo.	12	June 26	10	12.4	June 27
		14	19	12.9	2
		27	27	12.1	14
				12.0	27
Missouri Basin					
Solomon:					
Beloit, Kans.	18	5	6	19.8	5
		17	20	27.8	19
Niles, Kans.	24	19	23	28.2	21
Saline: Tescott, Kans.	25	June 29	2	28.3	1
Smoky Hill:					
Abilene, Kans.	22	18	19	24.1	18
Enterprise, Kans.	26	17	19	29.8	18
Little Blue: Endicott, Nebr.	11	19	19	11.5	19
Republican:					
Guide Rock, Nebr.	10	17	17	10.3	17
Scandia, Kans.	10	17	17	10.8	17
Concordia, Kans.	8	17	17	8.1	17
Clay Center, Kans.	15	1	1	16.1	1
		18	18	16.6	18
		26	27	17.9	26
Wakefield, Kans.	11	26	27	11.2	26
Kansas:					
Ogden, Kans.	18	18	18	18.6	18
Manhattan, Kans.	17	18	19	19.5	19
		27	27	18.8	27
Topeka, Kans.	21	1	1	22.4	1
LeCompton, Kans.	17	1	1	18.3	1
Lawrence, Kans.	18	1	1	19.0	1
Grand: Brunswick, Mo.	12	1	4	15.0	3
Osage:					
Quenemo, Kans.	30	1	2	35.1	1
		14	14	31.0	14
Ottawa, Kans.	24	1	3	29.6	2
		10	10	25.6	10
Osawatomie, Kans.	28	1	4	32.6	2
		9	11	31.9	11
LaCygne, Kans.	25	1	6	28.6	3
		9	13	28.3	11
Trading Post, Kans.	24	3	6	25.2	6
		9	14	25.5	10-12
Lakeside (Bagnell Dam) Mo.	60	8	14	60.2	10
		16	20	60.1	17
Missouri:					
Waverly, Mo.	18	1	3	19.3	2
Boonville, Mo.	21	2	3	21.3	3
Hermann, Mo.	21	3	5	22.1	4
St. Charles, Mo.	25	3	6	26.2	5
Ohio Basin					
White: Hazleton, Ind.	16	June 17	1	25.1	June 25
Wabash: New Harmony, Ind.	15	June 20	1	18.5	June 26-27
White Basin					
Black: Black Rock, Ark.	14	June 9	8	27.0	June 16, 18
White:					
Augusta, Ark.	32	June 12	3	35.9	June 16-17
Georgetown, Ark.	21	June 11	10	25.2	June 16-20
Des Arc, Ark.	24	June 14	4	27.7	June 21
				33.4	Mar. 14-16
				33.2	Apr. 9-1
Clarendon, Ark.	26	Feb. 27	18	39.1	Apr. 0
				29.4	May 24 25-26
				35.5	June 23-24
				38.6	Apr. 11-12
				39.2	Apr. 26-27
St. Charles, Ark.	25	Mar. 2	18	27.2	May 26-29
				33.6	June 26-27
Arkansas Basin					
Neosho:					
LeRoy, Kans.	23	June 30	1	25.5	1
Iola, Kans.	15	June 30	2	19.0	1
Chanute, Kans.	20	1	3	25.1	2
Parsons, Kans.	24	4	5	24.3	5
Oswego, Kans.	17	2	5	20.3	3
Red Basin					
Black: Jonesville, La.	50	Mar. 18	9	58.5	Apr. 28, 30
Sulphur:					
Hagansport, Tex.	38	12	13	38.2	12
Naples, Tex.	22	15	21	25.0	17

FLOOD-STAGE REPORT FOR JULY 1945—Continued

[All dates in July unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Red Basin—Continued					
Red: Alexandria, La.	*Feet* 32	June 23	1	*Feet* 33.7	June 27
				15.8	Mar. 10–11
Lower Mississippi Basin				17.5	Apr. 5–6
Big Lake Outlet: Manila, Ark.	10	Feb. 23		16.7	Apr. 20–21
				15.2	May 14–15
				18.3	June 20–21
St. Francis:					
Fisk, Mo.	20	June 22	(2)	22.0	1–4
				20.2	Mar. 23
				20.3	Mar. 26
				21.9	Apr. 8
				23.4	Apr. 20
St. Francis, Ark.	18	Mar. 19	(2)	21.5	May 3–5
				22.8	May 10
				21.9	June 12
				20.1	June 18
				19.5	6–7
				19.1	27–30
Parkin, Ark.	28	June 23	4	29.3	June 27–29
Madison, Ark.	32	June 29	June 30	32.0	June 29–30
Mississippi:					
Red River Landing, La.	45	June 30	9	45.8	5
Baton Rouge, La.	35	June 28	12	36.2	5–7
Donaldsonville, La.	28	1	10	28.4	4–9

FLOOD-STAGE REPORT FOR JULY 1945—Continued

[All dates in July unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest [1]	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Atchafalaya Basin					
Atchafalaya:	*Feet*			*Feet*	
Melville, La.	37	3	8	37.2	6–7
				28.4	May 3–8
Atchafalaya, La.	25	Mar. 8	18	27.7	May 19
				26.7	6–10
Morgan City, La.	6	8	10	6.0	8–10
		21	22	6.0	21–22
WEST GULF OF MEXICO DRAINAGE					
Sabine:					
Gladewater, Tex.	26	14	24	30.0	21
Logansport, La.	25	June 26	7	30.4	June 29
Bon Wier, Tex.	17	14	15	17.4	15
Elm Fork: Carrollton, Tex.	6	11	13	7.2	12
East Fork: Rockwall (nr.), Tex.	10	9	15	15.0	13
Trinity:					
Dallas, Tex.	28	11	16	31.6	14
Rosser (nr.), Tex.	26	11	20	30.2	15
Trinidad, Tex.	28	13	23	35.1	18

[1] Provisional.
[2] Continued into August.

CLIMATOLOGICAL DATA FOR JULY 1945

CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS

[For description of tables and charts, see Review, January 1943, p. 15]

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Section	Temperature								Precipitation					
	Section average	Departure from the normal	Monthly extremes						Section average	Departure from the normal	Greatest monthly		Least monthly	
			Station	Highest	Date	Station	Lowest	Date			Station	Amount	Station	Amount
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	80.3	0.0	2 stations	102	23	2 stations	56	[1]3	5.75	+0.16	Mobile	16.73	Center Grove	0.92
Arizona	81.0	+.8	Mohawk	117	[1]6	Alpine	37	3	2.06	−.05	Groom Creek	6.71	2 stations	.09
Arkansas	78.1	−2.4	Camden	106	23	Marshall	45	18	3.94	+.23	Mount Ida	9.54	Eleven Point	.31
California	74.6	+1.2	Cow Creek	125	26	Boca	31	25	.07	.00	Seven Oaks	1.96	138 stations	.00
Colorado	67.2	.0	Hoehne	106	21	Fraser	24	1	2.18	+.04	Guffey	6.36	Manassa	.13
Florida	81.1	−.2	Wauchula	102	5	2 stations	62	[1]10	10.14	+2.76	Hillsboro River St. Pk.	20.53	Tavernier	3.54
Georgia	79.5	−.5	Millen	103	1	Blairsville	53	12	6.99	+1.22	2 stations	14.66	Dalton	2.59
Idaho	68.2	+.1	Bruneau	106	24	Landmark	21	[1]1	.29	−.37	Strevell	1.89	7 stations	.00
Illinois	73.8	−2.7	East St. Louis	104	23	2 stations	41	16	1.45	−1.75	Bloomington	3.94	Beardstown	.13
Indiana	73.2	−2.5	3 stations	102	[1]23	Bluffton	42	[1]11	3.44	+.12	Winona Lake	6.80	Bedford No. 2	1.11
Iowa	72.1	−2.5	2 stations	102	[1]24	Decorah	39	11	2.96	−.72	Glenwood	7.86	Keokuk	.04
Kansas	77.2	−2.0	Medicine Lodge	108	[1]25	Manhattan	47	10	3.64	+.50	La Cygne	12.54	Holton	1.03
Kentucky	75.2	−1.9	Paducah	104	24	Farmers	46	12	3.33	−.81	Greenup	6.75	2 stations	1.18
Louisiana	81.0	−.9	Ruston	101	24	2 stations	60	[1]4	8.42	+2.13	Belle Chasse	19.44	Plain Dealing	2.91
Maryland-Delaware	75.9	+.6	Snow Hill, Md	101	1	Oakland, Md	36	12	10.49	+6.11	Leonardtown, Md	20.25	Chewsville, Md	3.11
Michigan	66.4	−2.8	6 stations	99	24	Houghton Lake	30	11	2.62	−.11	Flint	6.03	Pellston	.64
Minnesota	67.8	−2.2	Winona	102	23	Cloquet	35	15	3.97	+.68	Alexandria AP	8.12	Wheaton	.98
Mississippi	80.0	−1.1	Pontotoc	103	23	2 stations	56	[1]4	6.26	+1.14	Biloxi	27.37	Booneville	1.10
Missouri	75.1	−2.9	2 stations	105	24	Black (near)	44	17	2.10	−1.44	Anderson	8.72	Kahoka	.15
Montana	67.7	+.6	2 stations	105	[1]21	West Yellowstone	24	1	.62	−.74	Goldbutte	2.10	McRae	.00
Nebraska	74.3	−1.2	Niobrara	110	31	3 stations	38	[1]1	2.72	−.37	Central City	8.61	Lyman	.30
Nevada	75.3	+2.7	Overton	117	10	2 stations	30	[1]1	.44	+.06	Searchlight	2.95	4 stations	.00
New England	68.9	−.2	Fort Devens, Mass	97	1	Woodstock, N. H	35	12	4.72	+.95	Stockbridge, Mass	11.73	New Bedford, Mass	1.04
New Jersey	73.2	−.6	5 stations	99	1	Charlotteburg	36	12	9.32	+4.62	Phillipsburg	17.84	Mays Landing	4.67
New Mexico	72.2	−.1	2 stations	106	[1]12	Adobe Ranch	22	2	1.94	−.52	Grenville	7.43	Animas	T
New York	69.5	−.3	Dansville	98	25	4 stations	35	[1]11	6.00	+2.07	Suffern	18.08	Orient	1.67
North Carolina	76.8	−.1	Albemarle	104	2	Mount Mitchell	46	11	8.07	+2.07	Henderson	18.25	Monroe	3.03
North Dakota	67.8	−1.2	3 stations	102	30	Wishek	30	2	2.31	−.12	Cavalier	5.50	Bowman	.38
Ohio	71.7	−2.0	Napoleon	98	24	Millport	36	12	3.57	−.23	Lock No. 23	6.79	Put-in-Bay	1.50
Oklahoma	79.0	−2.8	Alva	108	[1]25	3 stations	52	[1]1	4.20	+1.40	Ardmore	8.80	Elk City	.06
Oregon	67.4	+.9	The Dalles	106	[1]7	2 stations	22	30	.19	−.22	Canary	1.53	19 stations	.00
Pennsylvania	70.4	−1.8	Marcus Hook	103	1	Philipsburg	32	12	5.75	+1.47	Wild Creek Dam	17.89	2 stations	1.62
South Carolina	79.7	−.2	Calhoun Falls	109	1	Caesars Head	57	17	6.87	+.98	Charleston	17.25	Chappells	1.99
South Dakota	71.5	−1.6	3 stations	107	30	Pollock	30	2	2.14	−.28	LaDelle	7.25	Dupree	.14
Tennessee	76.9	−.9	Carthage	105	24	Rugby	42	16	4.01	−.47	Greenville	9.74	Samburg	.68
Texas	81.6	−1.4	Eagle Pass	109	12	Mount Locke	50	[1]1	3.93	+1.35	Garden City	15.55	Cotulla	.00
Utah	72.1	+.3	St. George	108	6	Clear Creek	26	1	.86	−.04	Cedar Breaks	3.60	3 stations	.00
Virginia	74.7	−.7	Capron	103	1	Mountain Lake	41	11	8.76	+4.06	Warsaw	20.21	Mendota	4.00
Washington	67.8	+1.0	4 stations	108	10	Paradise R. S	28	2	.26	−.39	Tatoosh Island	4.29	31 stations	.00
West Virginia	72.2	−1.0	2 stations	100	[1]1	3 stations	34	12	5.54	+.90	Oak Hill	9.88	Wheeling	1.64
Wisconsin	67.5	−2.6	Watertown	100	24	Prentice	33	11	3.31	−.14	Ellsworth	9.12	Williams Bay	.87
Wyoming	66.2	+.4	Rochelle	105	28	Foxpark	25	[1]1	1.05	−.27	Hampshire	4.34	Riverton	.05
Alaska (June)	49.4	−3.1	Skwentna	80	25	Point Lay	17	1	2.58	+.83	Ketchikan	12.25	Solomon	T
Hawaii														
Puerto Rico	78.6	+.2	Guayama	95	[1]1	Cayey	57	15	6.07	+.27	Rio Blanco (1800 ft.)	19.88	Santa Rita	1.30

[1] Other dates also.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JULY 1945

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
NEW ENGLAND	Ft.	Ft.	Ft.	Mb.	Mb.	Mb.	°F.	°F.	°F.		°F.	°F.		°F.	°F		°F.	%	In.	In.	In.		Mi.								0–10	In.	In.	
							69.1	+0.6										82	3.30	−0.2											6.7			
Eastport	75	67	85	1,013.9	1,016.6	+3.1	61.3	+.9	82	7	70	48	13	53	33	123	55	84	2.14	−.9	1.72	5	7.8	sw.	24	sw.	15	9	12	10	5.4	0.0	0.0	2
Greenville, Maine	1,070	6	41	977.7	1,016.9	.....	64.4	−.7	88	1	78	41	28	51	40	72	58	...	5.53	+1.3	1.66	12	....	s.	...	.....	..	4	14	13	....	.0	.0	4
Portland, Maine [1]	103	5	43	1,012.9	1,016.9	+2.7	67.1	−1.1	90	1	77	43	12	57	31	31	61	86	2.56	−.7	.87	9	8.1	s.	29	sw.	20	6	8	17	6.4	.0	.0	7
Concord [1]	289	5	45	1,006.4	1,016.9	+2.3	69.2	+1.8	91	1	81	43	12	57	36	17	62	82	4.07	+.5	1.36	11	6.6	s.	26	nw.	6	4	11	16	6.7	.0	.0	6
Burlington [1]	403	5	51	1,000.7	1,015.2	+1.3	70.0	−.3	88	31	81	47	12	59	32	15	60	72	4.57	+1.1	2.43	10	9.4	s.	33	nw.	14	4	12	15	6.7	.0	.0	8
Boston [1]	124	33	62	1,012.5	1,017.6	+3.0	71.9	+.2	93	1	80	55	12	64	23	0	62	76	2.12	−1.4	.97	9	10.0	sw.	36	sw.	15	1	13	17	7.3	.0	.0	4
Nantucket	12	11	59	1,017.3	1,018.0	+2.8	68.7	+.9	85	2	76	56	12	62	22	4	64	92	3.97	+1.1	1.68	6	9.7	sw.	30	sw.	14	3	10	18	7.3	.0	.0	3
Block Island	26	11	46	1,016.3	1,017.3	+2.4	69.3	+.9	83	1	75	56	12	64	16	5	65	90	2.30	−.8	1.08	10	11.4	sw.	32	s.	15	3	16	12	6.4	.0	.0	3
Providence [2]	159	46	60	1,011.9	1,018.0	+3.1	74.6	+1.2	95	1	83	52	12	66	27	0	64	80	1.96	−1.3	.96	9	7.6	s.	39	nw.	2	2	15	14	6.9	.0	.0	4
Hartford [1]	159	5	44	.....	1,017.3	+2.4	72.5	+.9	97	1	82	48	12	63	...	5	63	77	3.31	−1.1	1.16	11	7.7	s.	29	nw.	1	4	7	20	....	.0	.0	8
New Haven [1]	107	5	39	1,013.2	1,017.3	+2.4	71.6	+2.3	88	1	79	47	12	64	27	5	64	81	3.72	−.3	1.16	15	6.9	sw.	22	sw.	15	5	10	16	6.9	.0	.0	6
MIDDLE ATLANTIC							74.8	−0.1										81	9.30	+5.0										7.2			
Albany [1]	97	26	40	1,012.2	1,016.3	+1.7	70.0	−.9	90	30	80	46	12	60	29	12	62	77	6.59	+3.8	2.34	15	8.8	s.	30	se.	20	3	16	12	6.5	.0	.0	9
Binghamton [2]	871	60	79	985.1	1,016.6	+1.7	70.7	+.7	92	1	80	44	12	61	34	14	62	82	4.42	+.7	1.71	11	5.3	e.	17	w.	10	2	16	13	7.0	.0	.0	8
New York	314	415	454	1,005.4	1,016.9	+1.7	73.8	.0	95	1	80	60	11	68	21	0	64	78	5.09	+.8	1.76	16	12.3	s.	41	s.	15	4	10	17	7.2	.0	.0	9
Harrisburg [1]	374	30	49	1,002.7	1,016.3	+1.1	74.2	−.6	97	1	83	49	12	65	31	1	64	76	8.52	+4.7	3.91	14	7.2	se.	26	s.	15	2	9	20	7.8	.0	.0	11
Philadelphia [1]	114	5	57	1,012.5	1,016.9	+1.7	76.0	−.2	98	1	83	62	12	69	24	0	67	84	8.86	+4.7	2.87	15	6.9	sw.	33	ne.	26	4	8	19	7.3	.0	.0	11
Reading	323	47	306	1,004.7	1,016.6	.....	74.6	−.6	96	1	83	51	12	66	27	1	...	...	7.50	+3.2	2.20	15	9.6	se.	43	ne.	26	4	7	20	7.6	.0	.0	8
Scranton	805	72	104	987.8	1,016.9	+1.7	71.4	−.3	93	1	80	45	12	63	33	8	...	...	11.75	+7.7	3.67	18	5.4	n.	20	nw.	20	5	12	14	6.6	.0	.0	12
Atlantic City	52	37	172	1,014.9	1,016.9	+1.7	74.6	+2.5	89	1	79	58	12	70	18	0	69	86	10.22	+6.3	3.33	13	13.1	s.	38	s.	18	2	9	20	7.7	.0	.0	11
Trenton	190	89	107	1,009.8	1,016.9	.....	74.6	+.1	98	1	82	55	12	67	26	0	66	81	8.97	+5.0	1.94	15	7.6	s.	46	sw.	2	1	10	20	7.5	.0	.0	10
Baltimore [3]	123	100	215	1,011.9	1,016.6	+1.4	77.0	−.2	100	1	84	59	12	70	24	0	67	78	9.68	+5.0	2.82	16	8.8	s.	32	nw.	2	5	13	13	6.7	.0	.0	16
Washington [3]	112	56	100	1,012.2	1,016.9	+1.0	76.8	.0	99	1	85	55	12	68	25	0	67	78	9.99	+5.3	2.40	14	5.8	s.	23	w.	9	3	11	17	7.1	.0	.0	14
Cape Henry	18	8	54	1,015.9	1,016.6	.....	78.2	+.7	98	1	84	67	9	72	26	0	72	84	12.64	+7.3	5.02	20	9.2	s.	34	n.	2	2	15	14	7.0	.0	.0	15
Lynchburg [1]	686	4	50	992.2	1,016.3	.0	75.8	−.3	97	1	86	58	12	66	27	0	66	79	6.26	+2.0	2.20	13	7.0	sw.	26	n.	22	1	16	14	6.8	.0	.0	12
Norfolk [3]	91	80	125	1,013.5	1,017.3	+1.4	78.4	−.3	98	2	85	64	12	71	26	0	71	84	12.92	+7.2	3.00	20	8.3	sw.	25	n.	22	0	12	19	7.7	.0	.0	16
Richmond	144	11	52	1,010.8	1,016.3	.0	76.6	−1.9	101	1	85	55	12	68	29	0	69	84	16.08	+11.4	5.72	19	6.5	sw.	27	n.	11	1	13	17	7.2	.0	.0	16
SOUTH ATLANTIC							79.2	+0.3										83	7.98	+2.2										6.8			
Asheville	2,253	77	92	939.4	1,016.9	+.3	73.9	+2.2	93	1	84	59	16	64	29	0	64	80	3.75	−.6	1.11	16	6.0	se.	24	sw.	10	1	13	17	7.5	.0	.0	17
Charlotte [3]	779	63	86	988.8	1,016.6	.0	79.0	+.6	98	2	88	64	17	70	27	0	68	79	6.38	+1.3	2.70	16	6.3	sw.	24	sw.	9	0	13	18	7.3	.0	.0	10
Greensboro [1]	886	6	56	985.8	1,016.9	.....	77.2	.0	96	2	87	59	13	68	30	0	68	81	3.50	−1.6	2.15	12	6.6	sw.	21	w.	2	2	12	17	7.2	.0	.0	16
Hatteras	11	5	50	1,017.3	1,018.0	+1.7	79.4	+1.2	89	1	84	68	11	75	14	0	74	86	9.61	+4.1	2.45	16	12.1	sw.	31	w.	16	4	9	18	7.1	.0	.0	10
Raleigh [1]	376	5	69	1,003.1	1,016.6	.0	78.0	−.8	97	1	87	60	12	69	26	0	70	83	8.26	+2.9	1.49	21	6.9	sw.	24	nw.	2	5	15	11	6.2	.0	.0	10
Wilmington	72	73	107	1,014.6	1,017.3	+1.0	79.2	+.1	91	1	86	67	7	73	24	0	73	86	11.92	+4.8	3.78	18	9.2	sw.	37	se.	7	4	14	13	6.4	.0	.0	14
Charleston [3]	48	11	92	1,014.9	1,016.9	.0	80.8	−.6	92	11	86	71	16	75	20	0	74	88	17.25	+10.4	4.29	17	9.2	s.	25	ne.	12	6	13	12	6.0	.0	.0	12
Columbia, S. C. [3]	347	70	91	1,004.1	1,016.6	.0	80.6	−.3	100	1	90	69	21	71	29	0	71	80	3.78	−1.6	.71	16	7.1	s.	29	sw.	26	3	11	17	6.9	.0	.0	12
Greenville, S. C. [1]	1,040	18	36	980.0	1,016.3	.....	77.8	+.9	94	1	86	65	17	69	27	0	68	80	6.47	+1.1	3.24	12	7.0	sw.	24	s.	26	0	14	17	7.5	.0	.0	13
Augusta [3]	182	62	77	1,009.8	1,016.3	−.3	81.2	−.1	99	2	90	68	8	72	26	0	70	80	5.97	+.6	1.89	20	5.2	s.	31	se.	23	3	11	17	7.0	.0	.0	17
Savannah [4]	65	73	152	1,014.6	1,016.9	.0	81.1	+.2	96	2	90	68	24	72	25	0	73	88	9.92	+3.3	2.82	19	8.9	sw.	41	nw.	11	4	17	10	6.5	.0	.0	10
Jacksonville [3]	43	86	110	1,015.9	1,017.6	+.7	82.0	−.1	94	3	90	71	12	74	19	0	73	82	8.99	+2.3	1.81	21	7.2	sw.	22	nw.	9	3	18	10	6.6	.0	.0	19
FLORIDA PENINSULA							81.9	−0.3										80	7.54	+1.9										6.5			
Key West [3]	21	10	64	1,015.9	1,016.9	.0	83.6	+.1	91	8	89	72	4	78	16	0	74	75	6.39	+3.1	2.71	11	8.2	e.	34	w.	22	5	14	12	6.0	.0	.0	13
Miami [3]	25	242	249	1,016.3	1,017.3	.0	80.4	−1.4	87	27	84	71	19	76	13	0	73	80	4.01	−1.6	2.37	17	11.7	se.	31	se.	18	2	20	9	6.5	.0	.0	10
Tampa [1]	35	6	43	1,015.9	1,017.3	.0	81.7	+.5	94	7	89	72	24	75	19	0	74	84	12.23	+4.3	5.19	19	7.8	se.	31	sw.	14	1	18	12	7.0	.0	.0	25
EAST GULF							80.1	−0.5										83	8.35	+2.7										6.8			
Atlanta [1]	1,173	33	72	975.3	1,016.3	−.3	79.2	+.1	97	1	89	63	3	70	29	0	68	78	7.97	+3.1	3.45	14	8.2	sw.	28	sw.	28	2	18	11	6.5	.0	.0	15
Macon [3]	370	79	87	1,003.1	1,016.3	−.3	80.1	−1.1	97	1	89	66	24	71	28	0	71	82	8.11	+3.4	1.75	20	5.6	s.	37	sw.	24	2	13	16	7.4	.0	.0	16
Thomasville	273	49	58	.....	.....	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Apalachicola	35	11	51	1,015.2	1,016.6	.....	80.6	−1.1	91	9	86	71	17	75	14	0	74	82	11.03	+3.3	2.28	20	6.4	sw.	21	s.	20	2	14	15	7.6	.0	.0	19
Pensacola	56	54	79	1,014.6	1,016.3	.0	80.8	−.2	91	11	87	72	20	75	18	0	74	83	6.14	−.6	1.87	19	6.5	w.	20	w.	25	1	18	12	6.8	.0	.0	11
Anniston	741	9	...	.....	.....	.....	78.4	−.1	94	10	88	61	12	68	27	0	...	...	4.43	−.8	1.10	11	....	nw.	...	.....	..	9	12	10	....	.0	.0	8
Birmingham [1]	700	5	62	991.5	1,015.9	−.4	79.7	.0	100	23	90	63	12	69	27	0	68	77	3.34	.....	1.31	10	6.4	ne.	29	nw.	9	2	21	8	6.2	.0	.0	10
Mobile [3]	57	86	161	1,014.2	1,016.3	.0	80.6	−.8	93	11	88	71	12	74	21	0	73	88	16.73	+9.8	3.60	23	5.3	w.	22	w.	26	2	13	16	7.2	.0	.0	19
Montgomery [3]	218	92	105	1,008.5	1,016.3	−.3	81.2	−.5	95	24	90	69	2	72	25	0	73	86	6.83	+2.0	1.55	19	6.0	sw.	32	s.	8	5	11	15	6.5	.0	.0	14
Meridian [3]	375	67	92	1,002.7	1,015.9	−.7	80.0	−.4	95	1	89	66	16	71	26	0	71	84	5.88	+1.0	2.06	14	5.0	n.	33	nw.	10	7	18	6	5.8	.0	.0	14
Vicksburg [3]	247	82	102	1,006.8	1,015.6	−.3	79.8	−1.5	95	23	88	66	16	72	23	0	72	86	5.34	+.8	1.18	17	7.0	n.	23	nw.	10	4	13	14	6.4	.0	.0	11
New Orleans [4]	53	50	84	1,013.5	1,015.6	−.3	81.0	−.4	94	8	88	68	26	74	22	0	74	86	11.08	+4.7	2.54	20	4.9	se.	18	se.	9	1	14	16	7.6	.0	.0	16
WEST GULF							82.2	−0.7										77	4.11	+0.8										6.1			
Shreveport [1]	249	5	64	1,006.4	1,015.2	.0	81.3	−1.9	96	26	90	68	17	73	22	0	72	78	5.68	+2.1	3.16	10	7.4	ne.	32	n.	1	7	11	13	6.2	.0	.0	9
Fort Smith	463	57	82	999.3	1,014.9	.0	80.1	−1.4	99	25	90	64	17	71	26	0	68	71	5.90	+2.5	2.72	7	5.6	e.	24	ne.	9	15	8	8	4.8	.0	.0	7
Little Rock [1]	357	26	58	1,003.4	1,015.9	+.3	79.4	−1.5	99	23	89	62	17	70	25	0	68	75	4.57	+1.1	1.84	6	6.4	sw.	31	sw.	27	7	11	13	6.1	.0	.0	8
Austin [1]	605	10	41	993.2	1,013.9	.....	83.0	−1.0	98	26	92	68	18	74	24	0	70	72	1.61	−.7	.86	7	7.9	s.	28	nw.	13	3	20	8	6.2	.0	.0	5
Brownsville [1]	57	5	54	1,010.8	1,012.5	.....	84.6	+1.0	96	14	93	70	19	76	25	0	74	78	1.51	−.8	.97	6	10.7	se.	26	s.	31	6	20	5	5.2	.0	.0	1
Corpus Christi [1]	20	4	33	1,012.9	1,013.5	−1.1	84.2	+2.6	96	14	92	73	3	76	21	0	74	79	2.52	.....	1.61	7	11.4	se.	26	e.	15	3	21	7	5.8	.0	.0	4
Dallas [1]	512	5	45	997.0	1,014.6	.....	81.8	−2.4	98	26	91	68	5	73	25	0	72	76	7.68	+4.8	5.39	10	8.0	e.	28	e.	28	11	10	10	5.3	.0	.0	4
Fort Worth [1]	679	40	56	991.5	1,014.9	+.3	81.7	−1.9	100	26	91	67	18	73	24	0	69	72	3.07	+.5	1.42	9	8.2	e.	33	n.	1	9	12	10	5.7	.0	.0	4
Galveston [3]	54	106	114	1,012.9	1,014.6	−.6	82.6	−.8	91	18	87	73	2	78	15	0	76	80	4.08	+.4	1.47	12	9.9	s.	26	s.	31	6	13	12	6.4	.0	.0	11
Houston [3]	138	157	190	1,009.5	1,013.9	.....	83.6	−.1	97	7	92	72	3	75	22	0	74	83	1.98	−2.0	.61	13	8.9	s.	28	e.	19	0	18	13	7.0	.0	.0	12
Palestine	510	64	72	997.6	1,014.9	.0	80.4	−1.8	94	26	89	66	17	72	21	0	71	78	7.73	+5.0	4.33	9	6.2	s.	22	ne.	1	5	16	10	6.2	.0	.0	6
Port Arthur [3]	34	59	134	1,013.5	1,014.6	.....	82.3	−.5	92	10	89	72	2	76	18	0	74	85	4.37	−2.6	1.34	18	11.1	sw.	38	se.	19	2	19	10	6.7	.0	.0	21
San Antonio [1]	693	8	51	989.8	1,013.5	−.7	84.2	+.4	100	26	95	70	18	73	29	0	70	68	1.19	−1.0	.96	6	8.3	se.	38	ne.	1	0	13	18	7.5	.0	.0	5
OHIO VALLEY AND TENNESSEE							74.8	−1.0										74	3.96	+0.1										5.4			
Chattanooga [1]	762	6	66	988.8	1,015.9	−.7	78.7	+1.3	95	23	89	57	12	68	34	0	68	76	5.59	+1.3	.76	16	6.2	s.	35	nw.	24	6	17	8	5.8	.0	.0	15
Knoxville [1]	995	27	53	981.4	1,016.6	+.7	77.8	+1.1	97	1	88	59	17	67	29	0	66	75	5.46	+1.1	2.10	12	6.5	sw.	33	sw.	1	9	14	8	5.1	.0	.0	15
Memphis [4]	399	5	86	1,001.7	1,015.6	−.3	79.7	−.2	100	23	90	59	3	69	29	0	68	73	3.32	+.1	1.45	7	6.8	sw.	29	n.	10	10	13	8	5.1	.0	.0	8
Nashville [1]	546	5	72	996.3	1,015.9	−.4	77.8	−1.3	99	24	88	56	12	67	33	0	65	71	5.15	+1.3	1.61	8	6.4	n.	32	nw.	27	7	14	10	5.7	.0	.0	8
Lexington [1]	989	4	28	981.4	1,016.6	+.3	74.0	−1.9	95	21	85	50	16	63	30	5	63	73	4.63	+1.0	2.05	7	....	ne.	...	.....	..	8	17	6	5.2	.0	.0	10
Louisville [3]	525	106	120	997.3	1,016.3	+.4	75.0	−2.6	97	24	86	55	16	64	29	0	64	74	2.41	−1.3	.90	6	6.2	n.	20	nw.	14	10	17	4	4.6	.0	.0	5

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JULY 1945—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
OHIO VALLEY AND TENNESSEE—Con.	Ft.	Ft.	Ft.	Mb.	Mb.	Mb.	°F.	°F.	°F.		°F.	°F.		°F.	°F.		°F.	%	In.	In.	In.		Mi.								0–10	In.	In.	
Evansville [1]	431	11	40	1,000.7	1,016.3	+0.4	74.6	−1.9	96	24	86	54	11	64	28	0	64	72	3.74	+0.3	1.82	8	5.7	nw.	22	nw.	25	7	16	8	5.5	0.0	0.0	5
Indianapolis [1]	823	5	54	986.8	1,016.3	+.7	72.4	−1.9	96	24	83	49	16	62	30	4	62	72	4.06	------	1.49	10	7.5	sw.	30	ne.	22	3	19	9	5.9	.0	.0	7
Terre Haute [2]	575	68	149	995.9	1,016.6	-----	75.3	−1.7	100	24	86	55	16	65	27	0	62	70	3.20	.0	1.92	7	7.3	n.	32	w.	25	11	12	8	5.2	.0	.0	7
Cincinnati [2]	627	11	51	993.6	1,016.3	+.4	74.0	−1.1	97	24	85	52	16	63	30	2	64	76	1.67	−1.6	.64	7	4.9	ne.	24	sw.	9	9	16	6	5.2	.0	.0	7
Columbus [2]	822	90	110	986.8	1,016.3	+.4	73.5	−1.4	93	24	84	52	11	63	27	7	62	74	4.84	+1.3	1.65	11	7.3	s.	30	nw.	25	11	11	9	5.1	.0	.0	5
Dayton [1]	1,003	6	55	980.7	1,016.3	-----	72.8	−2.1	95	24	83	51	11	63	27	7	61	71	2.77	−.5	.88	9	7.9	nw.	29	nw.	15	8	17	6	5.3	.0	.0	7
Elkins [1]	1,947	4	45	949.2	1,017.6	+1.3	69.0	−.8	89	13	81	42	12	57	35	25	62	88	5.92	+.5	1.43	14	4.6	nw.	30	s.	19	3	16	12	6.3	.0	.0	18
Parkersburg	637	77	84	993.2	1,015.9	−.4	74.5	−.9	95	26	85	50	12	64	37	3	62	72	3.99	−.3	2.51	11	5.2	se.	19	nw.	2	10	13	8	5.2	.0	.0	12
Pittsburgh [1]	842	39	54	985.8	1,016.3	+.4	73.0	.0	91	25	83	52	11	63	29	4	60	71	2.74	−1.3	1.00	12	8.1	sw.	22	w.	1	4	17	10	6.4	.0	.0	9
LOWER LAKES							70.6	−0.2										73	4.12	+0.9											5.3			
Buffalo [1]	768	34	96	988.2	1,015.9	+1.0	70.2	+.2	92	25	81	43	11	60	32	22	60	76	3.97	+.9	1.48	12	10.5	sw.	43	nw.	7	6	16	9	5.6	.0	.0	6
Canton	448	10	61	998.6	1,014.6	-----	68.4	−.2	89	31	79	46	11	58	32	26	59	74	4.05	+.6	1.69	14	7.4	sw.	26	w.	1	5	18	8	5.9	.0	.0	10
Oswego	335	71	85	1,003.1	1,015.6	+1.0	69.6	+.4	91	25	77	51	12	62	28	18	60	75	6.55	+3.6	2.68	12	7.8	se.	27	n.	15	12	9	10	5.2	.0	.0	10
Rochester [1]	523	5	69	996.6	1,015.9	+1.0	70.2	+.4	94	25	80	44	11	60	31	17	60	76	8.08	+5.1	2.86	13	7.8	sw.	31	w.	1	5	16	10	6.0	.0	.0	10
Syracuse [1]	596	5	57	994.2	1,015.9	+1.0	70.6	+1.3	90	1	81	48	11	60	30	13	62	74	2.55	−1.1	.76	15	8.3	sw.	28	w.	10	2	15	14	6.6	.0	.0	11
Erie [2]	714	57	81	990.2	1,015.9	+.7	71.7	+.7	90	25	79	53	11	65	24	5	62	78	2.69	−.3	1.59	11	6.5	w.	18	w.	1	10	14	7	5.1	.0	.0	7
Cleveland [1]	762	27	54	988.5	1,015.9	+.3	71.7	−.2	95	24	82	51	17	61	34	5	60	70	3.11	−.3	1.89	9	8.0	nw.	24	w.	10	13	11	7	4.9	.0	.0	4
Sandusky	629	5	67	993.2	1,015.9	+.3	72.2	−1.2	90	25	81	54	12	64	28	7	----	---	1.87	−1.6	.96	8	7.3	sw.	24	sw.	5	11	13	7	4.6	.0	.0	4
Toledo [1]	628	5	47	993.2	1,015.9	+.3	70.2	−1.6	94	24	82	44	16	59	30	27	60	72	2.59	−.4	1.33	9	8.4	sw.	27	sw.	15	17	11	3	3.7	.0	.0	4
Fort Wayne [1]	857	5	33	985.1	1,015.6	-----	70.6	−1.8	94	24	82	46	11	60	30	25	60	71	6.68	+3.1	2.07	11	6.2	sw.	39	nw.	25	7	12	12	5.6	.0	.0	8
Detroit [1]	730	5	78	989.8	1,015.9	+.7	70.8	−.2	91	24	81	48	11	61	27	18	58	66	3.18	−.1	1.67	9	8.0	n.	28	w.	7	10	10	11	5.5	.0	.0	4
UPPER LAKES							66.6	−1.2										73	2.13	−1.0											5.5			
Alpena	609	5	89	993.6	1,015.9	+1.0	65.0	−.9	92	24	74	42	11	56	29	64	53	71	2.15	−.6	1.00	10	8.8	nw.	32	sw.	5	9	13	9	5.3	.0	.0	6
Escanaba	612	51	72	993.2	1,015.2	+.3	64.6	−1.4	85	24	73	42	11	56	29	64	55	74	1.81	−1.5	.88	9	9.0	s.	30	nw.	5	14	12	5	4.3	.0	.0	6
Grand Rapids [2]	707	70	244	990.2	1,015.6	+.4	70.6	−1.7	97	24	81	48	11	60	31	20	58	72	1.24	−1.7	.40	9	9.1	sw.	37	n.	24	13	11	7	4.9	.0	.0	5
Lansing [2]	878	5	90	984.4	1,016.3	-----	67.4	−3.5	90	24	78	42	11	57	28	44	56	68	2.08	−1.0	1.31	11	6.6	sw.	24	nw.	12	9	10	5.3	.0	.0	9
Marquette	734	44	73	988.2	1,015.2	+.6	64.2	−.7	94	24	73	46	11	56	34	93	54	70	1.90	−1.2	.71	12	7.1	n.	26	s.	3	6	14	11	6.1	.0	.0	5
Sault Ste Marie [1]	614	11	52	993.2	1,015.6	+.7	61.9	−.8	89	24	73	38	3	51	33	138	54	80	1.63	−1.1	.49	8	8.9	nw.	38	w.	10	6	13	12	6.1	.0	.0	7
Chicago [1]	673	5	36	991.5	1,015.9	+.7	72.0	−.7	99	24	83	49	16	61	32	8	60	69	1.33	−2.1	.46	7	7.7	sw.	35	n.	31	9	12	10	5.6	.0	.0	7
Green Bay	617	90	123	993.2	1,016.3	+1.4	68.1	−1.9	95	24	77	49	11	59	28	31	56	68	1.18	−2.3	.30	9	8.7	s.	25	s.	3	4	14	13	6.4	.0	.0	7
Milwaukee [1]	681	33	66	991.2	1,015.9	+1.0	67.8	−.4	97	24	78	45	16	58	29	42	58	76	2.65	−.2	1.46	10	10.4	n.	39	nw.	31	7	11	13	5.6	.0	.0	7
Duluth [2]	1,133	5	47	973.9	1,015.2	+1.0	64.1	+.2	93	23	73	45	10	55	30	85	54	78	5.32	+1.6	2.21	15	10.3	ne.	37	w.	8	10	11	10	5.4	.0	.0	12
NORTH DAKOTA							68.8	+0.4										70	1.94	−0.6											4.9			
Fargo [1]	940	5	43	979.7	1,013.5	−.4	68.6	+.5	96	23	81	40	2	56	34	39	58	74	1.22	−2.2	.55	9	10.9	s.	34	w.	11	8	14	9	5.4	.0	.0	11
Bismarck [1]	1,677	5	43	954.6	1,013.5	.0	69.6	+.2	98	22	83	39	2	56	44	39	57	69	1.98	−.3	.55	6	9.6	nw.	30	e.	3	10	16	5	4.7	.0	.0	9
Devils Lake	1,478	11	44	961.1	1,013.9	+.4	67.1	−.3	94	23	79	42	10	55	34	60	56	74	3.47	+.9	1.00	11	7.2	s.	33	n.	26	11	15	5	4.9	.0	.0	9
Grand Forks [1]	832	4	41	982.7	1,012.9	-----	67.4	----	96	23	80	41	2	55	37	47	58	74	2.56	------	.93	11	----	s.	----	----	---	8	13	10	----	.0	.0	7
Williston	1,878	42	50	947.2	1,012.9	−.3	70.0	+1.1	100	30	83	45	1	57	37	28	52	60	1.11	−.8	.51	8	6.4	se.	32	w.	17	9	19	3	4.5	.0	.0	10
UPPER MISSISSIPPI							73.1	−1.7										68	2.26	−1.2											5.3			
Minneapolis - St. Paul [1]	919	43	74	981.7	1,014.6	+.4	70.4	−1.9	96	23	81	49	10	60	32	23	58	72	4.13	+.4	1.89	12	10.1	se.	40	nw.	3	8	15	8	5.3	.0	.0	9
Springfield, Minn.	1,025	4	42	978.3	1,014.9	-----	71.2	-----	99	22	82	47	10	60	34	20	60	71	5.01	------	2.91	12	----	s.	----	----	--	10	15	6	----	.0	.0	10
La Crosse [1]	714	5	29	989.5	1,015.2	+.6	69.0	−2.8	93	24	79	48	11	59	30	21	60	75	5.30	+1.4	1.51	12	7.6	s.	34	w.	5	10	14	7	5.3	.0	.0	11
Madison [2]	974	70	78	981.0	1,015.9	+1.0	70.2	−1.9	93	24	79	53	10	61	29	17	58	68	2.14	−1.7	.70	11	6.5	nw.	19	ne.	14	9	15	7	5.2	.0	.0	6
Charles City	1,015	10	51	980.0	1,016.3	+1.7	70.0	−2.3	92	22	80	47	11	60	32	19	----	---	5.49	+1.7	2.32	10	5.4	se.	23	sw.	3	14	11	6	4.4	.0	.0	9
Moline [1]	606	6	50	994.2	1,016.3	+1.4	72.2	−1.3	102	24	84	46	11	60	37	13	58	66	1.39	−1.9	.57	5	7.5	s.	27	sw.	7	9	11	11	5.6	.0	.0	6
Des Moines [2]	860	5	99	985.4	1,015.9	+1.3	74.4	−1.0	98	22	85	52	2	64	27	2	60	66	2.80	−.7	.87	9	8.1	se.	36	nw.	23	9	16	6	4.9	.0	.0	8
Dubuque	699	60	79	990.9	1,015.9	+1.0	72.0	−2.1	98	31	83	50	11	61	31	7	59	66	1.74	−2.2	.93	7	4.8	nw.	16	ne.	14	9	13	9	5.4	.0	.0	7
Burlington [1]	702	4	36	990.9	1,016.3	+1.1	73.6	−2.2	102	24	86	51	3	61	32	6	60	68	.71	−2.9	.53	2	8.1	sw.	26	nw.	5	6	17	8	5.5	.0	.0	7
Cairo	357	5	99	1,003.4	1,016.3	+.4	79.0	−1.6	100	23	88	61	17	70	23	0	----	---	.84	−2.2	.84	8	6.2	ne.	28	n.	25	10	12	9	5.3	.0	.0	9
Peoria [1]	609	6	26	994.6	1,016.3	+1.1	72.4	−2.0	96	24	84	51	11	61	28	6	60	67	.57	−3.0	.48	5	7.3	sw.	30	sw.	7	9	15	7	5.4	.0	.0	4
Springfield, Ill. [2]	636	5	191	993.6	1,016.6	+1.4	76.0	−.5	99	24	86	55	16	66	27	0	62	71	1.00	−1.9	.39	10	8.9	sw.	27	nw.	22	7	18	6	5.6	.0	.0	8
St. Louis [2]	568	35	303	996.3	1,016.3	+.7	77.6	−1.2	98	23	86	62	2	69	---	0	----	61	1.00	−2.0	.62	3	8.4	sw.	24	n.	14	11	12	8	----	.0	.0	3
MISSOURI VALLEY							75.2	−0.6										69	2.35	−1.4											4.9			
Columbia, Mo. [2]	784	6	66	988.5	1,016.3	+1.1	74.9	−2.4	99	24	85	53	11	65	28	0	63	70	.70	−2.8	.47	7	5.4	s.	17	nw.	28	16	11	4	4.1	.0	.0	4
Kansas City [1]	963	39	76	981.7	1,015.6	+.7	77.4	−.7	100	22	87	60	11	68	29	0	62	64	1.73	−2.1	.84	6	8.7	sw.	29	nw.	13	7	16	8	5.6	.0	.0	4
St. Joseph [2]	967	11	49	981.4	1,015.2	-----	76.0	−1.4	100	24	86	56	10	66	26	0	64	69	2.60	−1.2	.72	10	7.0	s.	23	n.	27	22	9	0	2.6	.0	.0	8
Springfield, Mo. [1]	1,324	5	67	969.9	1,016.3	.0	75.1	−1.1	96	23	86	55	2	64	31	1	64	74	1.53	−2.7	.78	5	8.3	s.	34	s.	9	10	13	8	5.1	.0	.0	7
Topeka	987	65	87	981.0	1,015.9	-----	78.0	+.2	102	24	88	60	2	67	28	0	64	68	2.75	−1.5	1.61	8	7.8	s.	27	w.	8	7	17	7	5.5	.0	.0	8
Lincoln [2]	1,189	11	81	972.9	1,014.6	+.4	76.6	+.1	100	24	87	53	2	66	29	0	63	68	2.73	−1.1	1.40	7	8.0	s.	34	nw.	3	7	13	11	6.0	.0	.0	10
Omaha [1]	1,105	5	68	977.0	1,015.9	+1.7	75.8	+.6	101	24	86	51	2	65	30	1	62	68	4.31	+.8	1.37	10	9.5	se.	45	n.	27	7	18	6	5.3	.0	.0	11
Valentine	2,598	46	54	924.5	1,014.6	+1.1	73.3	−.4	103	23	87	45	1	60	37	19	56	63	2.01	−1.0	1.28	7	8.0	s.	34	w.	4	12	15	4	4.5	.0	.0	10
Sioux City [1]	1,138	5	40	974.6	1,014.9	+.7	72.8	−.5	97	31	84	47	2	62	32	11	63	75	3.89	+.4	1.31	9	8.9	se.	46	sw.	4	10	17	4	4.7	.0	.0	12
Huron [1]	1,301	5	41	968.2	1,014.2	+.3	71.8	.0	97	24	84	40	2	60	37	28	62	75	1.22	−1.9	.34	12	10.8	se.	34	nw.	3	9	18	4	5.2	.0	.0	13
NORTHERN SLOPE							70.9	+2.0										54	0.84	−0.7											4.2			
Billings [1]	3,570	16	40	892.7	1,013.2	-----	72.7	+.7	98	21	87	47	1	58	38	8	53	56	.68	------	.51	4	9.5	sw.	45	nw.	30	14	16	1	4.2	.0	.0	10
Havre	2,507	11	67	926.2	1,012.9	.0	72.8	+4.5	101	21	87	44	1	58	41	15	44	44	.46	−1.4	.22	8	8.2	nw.	24	nw.	4	12	15	4	4.5	.0	.0	8
Helena [1]	4,124	5	43	875.4	1,014.2	+.7	69.0	+3.3	96	21	86	39	1	52	44	11	45	52	.29	−.8	.19	3	7.9	w.	42	w.	28	12	17	2	4.0	.0	.0	10
Missoula [1]	3,263	4	32	903.2	1,014.9	-----	69.0	+2.2	97	21	87	39	31	51	45	17	42	47	.20	−.6	.11	3	6.8	nw.	31	sw	28	20	10	1	3.2	.0	.0	9
Kalispell	2,973	48	56	912.0	1,012.5	−1.0	67.6	+3.5	96	21	83	42	18	52	42	33	44	50	.31	−.8	.19	3	6.2	w.	19	sw.	30	15	15	1	3.6	.0	.0	5
Miles City [1]	2,371	5	78	930.9	1,013.2	.0	73.9	-----	101	30	89	41	1	59	36	10	50	51	1.53	------	1.01	5	----	se.	----	----	--	12	15	4	4.4	.0	.0	11
Rapid City [1]	3,259	5	63	902.8	1,014.2	+.7	71.2	+.2	100	30	85	41	1	57	39	23	54	64	1.44	−.6	.39	9	11.1	s.	49	nw.	4	14	12	5	4.2	.0	.0	15
Cheyenne [1]	6,094	5	40	817.5	1,015.2	+2.0	68.2	+1.5	91	29	82	41	1	54	37	31	49	62	1.57	−.5	.57	9	8.4	nw.	26	sw.	29	8	16	7	5.1	.0	.0	12
Lander	5,352	60	68	838.1	1,013.9	+.7	69.5	+2.1	97	25	88	37	1	51	45	17	45	50	.13	−.6	.08	4	4.8	sw.	27	w.	30	14	12	5	4.0	.0	.0	5
Sheridan [1]	3,790	5	38	885.9	1,014.6	-----	71.2	+2.8	99	25	87	43	1	56	40	11	48	52	.26	−1.0	.12	5	6.8	nw.	49	sw.	17	13	17	1	4.2	.0	.0	9
North Platte [2]	2,821	11	51	917.4	1,013.9	+.4	74.6	+1.7	99	23	86	50	2	63	33	8	60	70	2.92	+.2	1.11	10	6.7	se.	24	e.	7	8	16	7	5.0	.0	.0	12

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JULY 1945—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
	Ft.	*Ft.*	*Ft.*	*Mb.*	*Mb.*	*Mb.*	°*F.*	°*F.*	°*F.*		°*F.*	°*F.*		°*F.*	°*F.*		°*F.*	%	*In.*	*In.*	*In.*		*Mi.*								*0-10*	*In.*	*In.*	
MIDDLE SLOPE							76.7	−1.0										66	3.59	+0.7											4.9			
Denver [2]	5,292	106	113	841.2	1,014.6	+1.7	73.0	+0.8	95	29	85	48	1	61	36	8	50	58	2.40	+0.7	1.31	12	6.8	s.	29	nw.	12	4	27	0	5.1	0.0	0.0	13
Pueblo [1]	4,690	5	36	859.5	1,014.2	+1.3	73.2	−1.0	95	19	87	44	2	59	43	7	54	62	3.57	+1.6	1.31	9	7.7	nw.	40	sw.	6	5	21	5	5.1	.0	.0	18
Concordia	1,392	50	58	966.5	1,014.6	+.4	77.0	−1.0	100	23	88	58	2	67	29	0	63	66	4.04	+.3	2.50	9	6.9	s.	29	n.	9	8	18	5	5.0	.0	.0	9
Dodge City [1]	2,509	5	58	928.5	1,013.5	.0	77.4	−1.0	101	30	90	57	7	65	31	1	62	64	3.04	−.1	1.23	9	13.7	s.	49	nw.	16	10	15	6	4.9	.0	.0	14
Wichita [1]	1,358	6	64	967.8	1,014.9	+.3	78.6	−.8	100	25	89	59	11	68	27	0	64	66	5.01	+1.6	2.74	7	12.2	s.	45	nw.	4	10	19	2	4.7	.0	.0	9
Oklahoma City [2]	1,214	10	47	972.6	1,014.6	.0	79.3	−1.3	99	25	89	61	2	69	24	0	68	73	4.42	+1.6	1.90	7	7.1	s.	25	nw.	6	14	9	8	4.6	.0	.0	9
Tulsa [1]	674	10	60	991.5	1,014.9	-----	78.6	−2.5	98	23	89	60	11	69	27	0	68	75	2.65	−.6	1.78	6	7.8	s.	54	n.	9	12	11	8	5.0	.0	.0	3
SOUTHERN SLOPE							80.4	−0.2										62	1.73	−0.7											5.2			6
Abilene [1]	1,738	4	59	954.6	1,013.5	.0	79.5	−1.6	99	26	90	64	6	69	27	0	68	72	3.25	+1.1	1.15	8	10.2	s.	38	ne.	6	11	9	11	5.6	.0	.0	7
Amarillo [1]	3,676	5	42	891.6	1,013.9	+.7	77.2	+1.3	99	25	90	59	1	64	32	1	59	63	1.62	−1.2	.56	6	13.0	s.	42	ne.	28	15	11	5	4.5	.0	.0	6
Del Rio	960	63	71	979.0	1,010.8	+1.7	86.7	+.4	103	13	96	73	6	77	26	0	66	57	.59	−1.8	.32	5	9.4	e.	31	e.	2	2	20	9	6.1	.0	.0	4
Roswell	3,566	75	85	894.3	1,013.2	+1.3	78.2	−.7	96	24	90	60	4	66	32	0	57	55	1.45	−.8	.84	5	7.9	s.	29	se.	5	12	12	7	4.6	.0	.0	10
SOUTHERN PLATEAU							83.0	+1.5										45	1.59	0.0											4.5			
El Paso [1]	3,778	39	85	886.6	1,010.2	−.3	81.7	+2.0	101	24	93	63	3	70	29	0	58	50	.47	−1.5	.33	7	9.4	se.	42	e.	1	11	14	6	4.6	.0	.0	9
Albuquerque [1]	5,314	5	45	839.8	1,010.5	-----	78.4	+1.7	98	24	92	60	6	65	33	0	49	42	1.09	−.3	.75	6	11.1	se.	50	n.	6	11	19	1	4.5	.0	.0	15
Flagstaff	6,907	36	51	795.1	1,016.3	+6.1	68.0	+2.3	90	12	84	46	10	52	41	5	44	54	4.14	+1.2	1.02	16	----	nw.	---	-----	-----	---	5	17	9	5.9	.0	.0	19
Phoenix [2]	1,107	39	87	-----	1,007.5	−1.0	90.9	+1.1	110	21	104	70	1	78	---	0	59	40	.93	−.1	.42	6	7.1	w.	28	ne.	7	17	9	5	----	.0	.0	6
Tucson [1]	2,555	5	39	924.1	1,008.8	-----	86.5	+.1	104	1	99	68	1	74	36	0	56	42	2.84	+.6	2.26	9	----	nw.	---	-----	-----	---	9	12	10	5.4	.0	.0	14
Yuma	142	9	54	1,003.1	1,007.1	−.7	92.6	+1.8	113	25	108	69	5	77	41	0	60	40	.09	−.1	.05	3	5.6	s.	26	e.	30	23	8	0	2.3	.0	.0	3
MIDDLE PLATEAU							74.5	+2.3										40	0.70	+0.2											3.5			
Reno [1]	4,527	20	52	863.5	1,013.5	+2.0	71.2	+3.1	104	26	94	42	25	48	59	0	42	48	.10	−.2	.05	3	7.2	nw.	28	s.	9	24	5	2	2.1	.0	.0	4
Winnemucca	4,339	5	56	868.9	1,012.5	.0	75.2	+4.6	102	26	94	48	1	56	52	0	41	35	.60	+.4	.45	3	7.1	sw.	30	nw.	14	23	6	2	2.2	.0	.0	4
Modena	5,473	10	46	835.8	1,012.2	+1.0	71.6	+1.0	96	25	89	47	1	54	43	1	----	---	.48	−.6	.22	5	8.8	sw.	47	e.	26	8	20	3	4.7	.0	.0	12
Salt Lake City [1]	4,227	32	58	868.3	1,012.5	.0	75.9	+1.9	99	25	92	49	1	60	41	1	48	42	1.92	+1.4	1.65	5	9.3	se.	38	se.	18	15	13	3	3.9	.0	.0	5
Grand Junction	4,602	60	68	860.8	1,013.2	+1.0	78.5	+.8	99	27	92	56	2	65	34	0	46	37	.40	−.2	.17	8	6.4	se.	24	sw.	10	14	11	6	4.4	.0	.0	12
NORTHERN PLATEAU							73.3	+2.9										42	0.05	−0.4											2.7			
Baker [2]	3,471	36	54	896.7	1,015.2	+1.0	68.4	+2.8	96	24	87	41	31	50	46	22	42	52	.13	−.4	.09	2	5.9	n.	22	sw.	21	21	9	1	2.7	.0	.0	4
Boise [1]	2,739	5	49	919.1	1,012.5	+1.0	74.9	+2.4	97	24	92	49	18	58	40	0	41	35	.07	−.2	.07	1	8.7	nw.	43	sw.	13	22	6	3	2.5	.0	.0	2
Pocatello [1]	4,478	5	31	864.9	1,013.9	+.7	72.4	+2.2	98	27	90	36	1	55	48	9	42	40	.12	−.6	.06	4	8.9	w.	33	s.	18	17	10	4	3.9	.0	.0	6
Spokane [1]	1,929	27	42	946.2	1,013.5	−1.1	70.9	+1.9	96	27	88	45	18	54	43	8	43	43	T	−.7	T	0	7.4	ne.	29	sw.	21	22	7	2	2.9	.0	.0	1
Walla Walla	991	57	65	978.7	1,013.2	−1.7	77.6	+3.6	102	10	92	52	31	64	37	0	----	---	T	−.4	T	0	5.3	s.	18	sw.	29	23	8	0	2.0	.0	.0	1
Yakima	1,076	58	67	975.6	1,013.5	-----	75.8	+4.4	101	27	90	51	17	61	40	2	----	---	T	−.3	T	0	6.9	nw.	24	sw.	21	24	6	1	2.2	.0	.0	0
NORTH PACIFIC COAST							65.3	+1.4										68	0.86	+0.2											4.2			
North Head	211	5	55	1,011.9	1,019.0	+.4	55.3	−1.9	69	25	59	47	5	51	14	302	52	90	.51	−.4	.39	8	16.0	n.	43	s.	21	4	13	14	6.8	.0	.0	0
Seattle [2]	125	90	321	1,013.5	1,018.0	+.7	66.6	+1.1	89	7	78	50	4	56	32	33	51	64	.16	−.5	.16	1	7.8	ne.	29	sw.	21	17	7	7	3.6	.0	.0	0
Tacoma	194	172	201	1,011.2	1,017.6	−.4	65.2	+2.4	87	10	75	47	4	55	28	44	----	---	.35	−.2	.35	1	7.7	n.	23	w.	19	17	6	8	3.9	.0	.0	0
Tatoosh Island	86	9	61	1,016.3	1,019.3	+1.7	54.4	−.7	66	6	58	47	5	50	17	331	52	91	4.29	+2.8	3.72	12	11.8	sw.	45	s.	21	3	11	17	7.1	.0	.0	0
Medford [1]	1,329	29	58	967.8	1,014.2	-----	74.2	+1.5	100	8	92	49	4	56	48	0	48	48	T	−.3	T	0	----	nw.	---	-----	-----	---	25	4	2	2.0	.0	.0	2
Portland, Oreg. [2]	154	68	106	1,011.9	1,017.3	−.3	70.2	+3.5	94	7	82	51	30	59	30	16	52	62	.60	.0	.59	2	7.2	nw.	19	nw.	27	17	7	7	3.7	.0	.0	0
Roseburg	510	45	76	998.0	1,015.6	−1.3	71.2	+3.8	98	12	87	49	3	55	42	3	52	54	.14	−.2	.10	4	4.8	n.	17	n.	30	22	6	3	2.5	.0	.0	1
MIDDLE PACIFIC COAST							69.7	+2.7										62	T	0.0											3.2			
Eureka	60	72	88	1,014.9	1,016.9	−.7	56.2	+.7	71	22	61	47	3	51	17	274	50	82	T	−.1	T	0	6.5	sw.	20	sw.	8	13	8	10	4.6	.0	.0	0
Red Bluff [1]	353	5	26	998.0	1,009.8	-----	85.8	+5.0	112	26	102	59	19	70	40	0	46	30	T	.0	T	0	6.7	se.	19	se.	18	28	2	1	1.6	.0	.0	0
Sacramento	66	92	115	1,008.5	1,010.5	−1.4	77.2	+4.0	107	26	95	52	19	59	42	0	52	53	T	.0	T	0	7.7	s.	19	s.	17	28	1	2	1.0	.0	.0	0
San Francisco [2]	155	112	132	1,008.1	1,013.5	−.7	59.6	+1.1	75	25	64	52	27	55	19	169	54	82	T	.0	T	0	11.3	w.	27	w.	23	5	16	10	5.7	.0	.0	0
SOUTH PACIFIC COAST							74.7	+1.4										63	T	0.0											3.4			
Fresno [1]	327	5	34	998.3	1,009.1	−1.1	84.2	+2.9	110	27	102	55	19	66	41	0	51	33	T	.0	T	0	7.0	nw.	17	nw	21	28	2	1	1.6	.0	.0	0
Los Angeles	338	223	250	1,001.0	1,012.9	+.4	71.0	+.8	89	22	80	58	19	61	23	0	59	74	T	.0	T	0	5.6	w.	17	w.	10	20	10	1	3.1	.0	.0	1
San Diego [1]	87	20	55	1,010.2	1,012.5	−.7	69.0	+.5	83	21	75	60	8	63	18	0	60	76	T	.0	T	0	6.5	nw.	16	sw.	22	10	12	9	5.6	.0	.0	0
WEST INDIES																																		
San Juan, P. R.	82	10	54	1,012.5	1,015.9	-----	79.8	−.3	89	5	83	73	10	76	12	0	75	83	7.03	+1.1	1.42	24	12.7	e.	33	e.	28	2	19	10	6.7	.0	.0	11
PANAMA CANAL (JUNE)																																		
Balboa Heights	118	6	92	-----	[3]1,009.5	+.4	81.8	+1.9	93	15	88	74	13	76	17	0	75	[3]87	5.17	−3.1	1.58	19	4.8	n.	22	n.	23	0	17	13	7.2	.0	.0	7
Cristobal	27	47	97	-----	[3]1,009.8	−.4	82.4	+1.6	92	19	87	74	30	78	15	0	76	[3]82	6.62	−7.1	1.47	21	7.7	ne.	23	ne.	6	2	7	21	7.6	.0	.0	10
ALASKA																																		
Anchorage [1]	132	6	44	1,008.8	1,013.9	-----	57.4	+.4	74	20	66	38	25	48	32	240	48	74	1.49	−.1	.64	9	6.0	s.	21	s.	10	1	12	18	7.4	.0	.0	0
Fairbanks [1]	455	5	63	993.6	1,011.5	-----	59.1	−.9	83	10	70	42	20	48	34	184	50	77	2.04	+.2	.35	13	6.2	w.	28	w.	1	3	9	19	7.4	.0	.0	9
Juneau [1]	80	6	30	1,013.2	1,016.3	-----	52.7	-----	69	8	59	41	16	47	21	583	48	82	7.76	-----	1.67	26	7.6	n.	28	se.	13	0	2	29	9.0	.0	.0	0
Nome	22	25	56	1,011.5	1,012.2	-----	49.4	−.4	71	9	56	32	4	43	28	481	44	84	1.53	−1.0	1.16	8	7.9	w.	24	w.	15	10	5	16	6.0	.0	.0	0
Barrow	29	5	27	1,011.9	1,012.5	-----	37.3	−2.6	58	20	44	26	14	31	27	857	34	93	.67	−.2	.25	10	9.3	-----	25	-----	29	1	5	25	8.6	.5	.0	0
Gambell	32	5	32	-----	1,012.2	-----	46.7	+.9	55	24	51	36	4	43	14	565	44	92	.38	−1.4	.14	8	10.7	-----	38	w.	2	2	7	22	----	.0	.0	0
Ketchikan	75	69	90	1,016.9	1,017.6	-----	55.4	−2.3	68	15	60	44	5	51	21	303	49	82	9.12	+1.0	2.47	22	6.8	se.	22	se.	21	1	3	27	8.7	.0	.0	0
Kotzebue	20	5	31	1,010.8	1,011.5	-----	52.4	−.3	68	6	58	36	1	47	19	391	48	86	1.36	.0	-----	10	11.0	w.	34	nw.	14	8	7	16	6.0	.0	.0	0
McGrath	341	5	31	-----	1,012.5	-----	58.6	-----	79	9	68	41	3	50	30	188	50	78	4.03	+1.6	.91	18	----	s.	---	-----	---	0	9	22	8.1	.0	.0	6
Northway	1,718	5	32	950.2	1,012.9	-----	56.2	-----	76	10	65	40	17	47	25	275	47	74	2.98	-----	.71	18	6.1	nw.	22	nw.	1	2	3	26	8.4	.0	.0	4

[1] Data are airport records.
[2] Barometric data (adjusted to old city elevation) and hygrometric data from airport; otherwise city office records.
[3] Observations taken hourly.
[4] Pressure (adjusted to old city elevation), temperature, and hygrometric data from airport; otherwise city office records.
[5] Temperature and precipitation from city records, other data from airport.

NOTE.—Except as indicated by notes [1], [2], [4], and [5] data in table are city office records.

SEVERE LOCAL STORMS FOR JULY 1945

[Compiled by Mary O. Souder]

[The table herewith contains such data as has been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
	July 1945						
Manassas, Va., vicinity of	2	4 p. m.			$9,000	Electrical	2 barns destroyed and 10 fine dairy cows killed by lightning.
Beadle County, S. Dak.	3	3:25 p. m.		0		Tornado	Funnel cloud observed. A farm 17 miles northwest of Huron and another 8 miles to the southeast struck, wrecking buildings and machinery, and killing some stock and poultry; 1 person injured.
Bennington, Nebr., and vicinities.	4	11:30 a. m.–1:30 p. m., C. W. T.	1 4		20,000	Hail	Loss in corn, oats, and wheat; path 6 miles long.
Naper to O'Neil, Nebr., vicinities of	4	7–8 p. m., C. W. T.	1 2–4			Heavy hail	Several thousand dollars in small grain lost; windows broken; roofs, gardens, and trees damaged; path 20 miles long.
Rising City to Staplehurst, Nebr., and vicinities.	4	8:30–10:20 p. m., C. W. T.	440–2,640	7	300,000	Tornado and hail	Property damaged and loss in crops; 12 persons injured.
Seward County, Nebr.	4	9:45 p. m., C. W. T.	1 2–5		200,000	Heavy hail	Loss in small grain, wheat loss 100 percent; considerable glass broken; path 12 miles long.
Wayne County, Nebr.	4	11 p. m.			15,000	Wind	Buildings and windmills damaged.
Nebraska, Wayne County, and between Dakota City and Homer in Dakota County.	4		1 3–15		130,000	Moderate to heavy hail.	Loss in corn, oats, and barley; other losses small. Path 15 miles long in Wayne County and 5 miles long in Dakota County.
Roger Mills County, Okla.	5	3–6 p. m.	1 13		200,650	Hail	Loss in cotton and feed crops, about 60 percent; path 20 miles long.
Cheriton, Va.	5	P. m.			1,000,000	Electrical	Large portion of the Webster Canning Co. plant burned after being struck by lightning.
Oswego, N. Y.	5					Heavy rain and hail.	Streets and cellars flooded; roads and upland crops damaged by erosion. Much loss to crops on muckland.
Pritchett, Colo.	6	1 p. m.	1 4		60,000	Hail	Loss in wheat, barley, and gardens; orchards, windows, and roofs damaged; hail 12 to 14 inches deep on the ground.
Fountain, Colo.	6	3 p. m.	1 2		27,500	do	Loss in crops, $20,000; damage to roofs and buildings, $7,500.
Nebraska, Mitchell Valley, to west of Scottsbluff.	6	6:30 p. m., M. W. T.	1 2–3		50,000	Moderate hail	Loss in crops; path 30 miles long.
Chesterfield Courthouse, Va.	8	2 p. m.	1 2		1,000	Hail	Crop loss, chiefly tobacco; damage to buildings negligible; path 3 miles long.
Keya Paha County, Nebr., south-central portion.	8	9 p. m.	1 2–7		10,000	Heavy hail	Principal loss in wheat, oats, and gardens; path 20 miles long.
Richmond, Va.	8	P. m.	500		1,000	Thundersquall	Several houses damaged; 2 mules killed.
Bruning, Nebr., and vicinity.	9	3:30 a. m., C. W. T.			60,000	Heavy hail and wind.	Principal loss in wheat; small loss in oats, corn, and sorghum.
Claremore, Okla.	9	9 p. m.	1 1		500	Wind	Property damaged.
Albemarle and Frederick Counties, Va.	9	P. m.	880		11,500	Electrical and hail	Damage to buildings and livestock killed, $1,500; loss in crops, $10,000. Much hail damage to small grains and fruit in small areas.
Aiken, Tex.	10	8:30 p. m.	1 1		50,000	Hail	Loss in cotton and wheat.
Rocky Ford, Colo.	10	P. m.			5,000	Rain	Basements flooded and roads blocked several hours.
Theresa, N. Y.	10				3,000	Electrical	10 cows killed by lightning.
Orangeburg, S. C.	10				500	Thundersquall	Damage to property of City Light and Water Co. and to county fair grounds. Some trees blown across highways.
Spink County, S. Dak.	11	9 p. m.–midnight.	1 3		20,000	Hail and wind	Loss in grain crops in Union Township; hail several inches deep near buildings; path 5 miles long.
Trinidad, Colo.	11				2,000	Rain	Flash flood drowned 34 steers.
Benkleman, Nebr., 15 miles north.	12–13	6–6:30 p. m., M. W. T.	1 2		5,000	Hail	Chief loss in wheat; path 3 miles long.
Wheat Ridge, Colo.	13	3 p. m.	1 2–3		20,000	do	Orchard, garden, and berry crops destroyed.
Anthon to Denison and Mapleton, Sac City, and Webster City, Iowa, and vicinities.	13	8 p. m.				Heavy hail and wind	Crops destroyed or damaged; 4 barns and several corn cribs about 5 miles northwest of Mapleton wrecked. Crops almost totally destroyed in center of storm path, but no reliable estimates available.
Greenfield, Ind.	14	7 p. m.	176	0	1,000	Tornado	Property damaged; no crop loss.
Virginia, eastern half of State.	14–18		1 100	3	1,543,000	Torrential rains	Excessive rains caused local flash floods several places. Bridge over Gillies Creek on eastern edge of Richmond, Va., weakened by flood and collapsed with loaded bus, causing death of infant and 2 soldiers. Property damage, $543,000 with more than $1,000,000 crop loss, especially tomatoes.
Flowerfield, Nebr.	15	5:30 p. m., M. W. T.	1 3		90,000	Heavy hail	Loss in wheat; path 16 miles long.
Greeley, Nebr., and vicinity.	16	5:30 a. m., C. W. T.	1 1		10,000	Hail	Loss in small grain and corn; other losses light. Path 3 to 4 miles long.
Platte County, Nebr., central portion.	16	4 p. m., C. W. T.	1 3		20,000	Heavy rain and hail.	Loss in oats, wheat, and corn.
Power County, Idaho	17	5 p. m.	1 ½–4		90,000	Heavy hail	Damage confined to winter wheat which was 10 to 100 percent loss. Path 25 miles long.
Aurora, Colo.	19	2 p. m.	1 2		5,000	Rain	Flash flood caused damage to houses and roads.
Do.	20	4:30 p. m.	1 5		50,000	do	Water from 4 to 6 inches in places; houses and roads damaged.
Denver, Colo.	20	4:50 p. m.	1 5		50,000	Electrical	20 fires started by lightning, the largest at Hallock and Howard Lumber Co. Some damage to power lines.
Pierce County, Nebr.	20	11 p. m., C. W. T.	1 3–5			Hail	Considerable property damaged; much loss in small grain.
Big Thompson Canyon, Colo.	20	P. m.			50,000	Rain	Main bridge between Salida and Canon City as well as bridges of less importance washed out.
Marion County, Ind.	22	3 p. m.			30,000	Wind and hail	Buildings, trees, and wires damaged, $20,000; loss in crops, $10,000.
Madison County, Ind.	22	6 p. m.			6,000	do	Property damage, $1,000; crop loss, $5,000.
New York State, eastern portion.	22				2,000,000	Heavy rain	Flash floods in the Albany-Pittsfield area resulted in damage from erosion and flooding; buildings wrecked; loss in crops.
Iowa, northern portion of State.	24					Heavy hail and wind	In 1 area 3 miles wide and 6 miles long, beginning about 4 miles northeast of Bancroft, heavy hail caused extensive damage to crops. In the center of the storm, soybean loss was 100 percent and corn 75 percent in a square-mile area. Further south, hail fell in the vicinity of Pomeroy and Jolley, and strong winds blew down trees and small buildings. A short distance to the east of this area, hail and wind damaged crops about 1 mile wide on highway 5 from Calhoun County eastward to Fort Dodge, the same area that was devastated by tornado in May 1944. Near Lidderdale a barn was struck by lightning and burned, and high winds were reported from Fremont County.

See footnotes at end of tables.

SEVERE LOCAL STORMS FOR JULY 1945—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
	July 1945						
Peyson, Okla., vicinity of	26	2-3 p. m.			$5,000	Wind	Property damaged; width of path estimated from a few yards to 1¼ miles.
Richmond, Va.	26	P. m.	880		2,000	Electrical, wind, and rain.	In Ginter Park section of Richmond, a violent thundersquall uprooted or broke trees, toppled chimneys, and interrupted telephone and electric services.
Anderson, Ind.	28	2:30 p. m.	[1]5		1,500	Wind and hail	Property damage, $1,000; loss in crops, $500.
La Crosse County, Wis., and bordering counties.	31	3 p. m., C. S. T.				Thundersquall	Damage to wires by falling trees and lightning; service not fully restored in parts of the area until afternoon of the following day. Chimneys and small buildings damaged.
Wisconsin, southern portion.	31	5:45 p. m., C. S. T.		3	7,900	Electrical	In Butler, Wis., a suburb of Milwaukee, 3 persons were killed and 5 injured; 25 cattle in Sauk County and 4 in Richland County killed; combined loss, $4,400. In Waukesha County, barn burned with $3,500 loss.
Milwaukee and Oconomowoc, Wis.	31	6 p. m., C. S. T.				Thundersquall	Trees and utility wires down at several points. The extreme wind velocity recorded at the airport was 40 miles from the northwest at 6:05 p. m.
Madison, Nebr., 6 miles northeast.	31	7 p. m., C. W. T.	[1]2		19,000	Heavy hail	Loss in small grain, but principally in corn; numerous windows broken and roofs damaged.

[1] Miles instead of yards.

SOLAR RADIATION AND SUNSPOT DATA FOR JULY 1945

[Solar Radiation Investigation Section, I. F. HAND, in charge]

SOLAR RADIATION OBSERVATIONS

Explanations of the tables and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the January 1944 REVIEW, page 43. A list of the pyrheliometric stations also is given on page 45 of the same REVIEW.

TABLE 1.—*Solar radiation intensities during July 1945*

[GRAM CALORIES PER MINUTE PER SQUARE CENTIMETER OF NORMAL SURFACE]

MADISON, WIS.

Date	Sun's zenith distance: 7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p. m.
	75th mer. time	Air mass: A. M.				*1.0	P. M.				75th mer. time
	e.	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e.
1945	*mb.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
July 3	12.7	0.79	0.88	1.01	1.16	1.32					13.7
July 6	14.8	.71	.81	.94	1.10	1.32					14.2
July 7	13.7	.74	.86								15.8
July 10	10.6	.76	.87	1.01	1.15	1.36					9.8
July 11	11.0	.83	.94	1.07	1.19	1.35					10.6
July 14	14.2										11.8
July 18	13.7				1.03	1.24					14.2
July 19	13.2	.44	.50	.64	.87	1.16					14.2
July 23	21.8		.32	.48	.68						23.4
July 24	25.0	.47	.55	.57	.69						24.2
July 25	18.3	.69	.80	.94	1.11						19.0
July 26	14.8	.60	.69	.80	1.02	1.27					14.8
July 27	14.2	.57	.68	.81							19.0
July 28	15.8	.64	.71	.83	.99						19.0
July 31	21.8	.35	.44	.59	.79	1.00					25.9
Means		.63	.70	.81	.98	1.25					
Departures		−.01	−.04	−.06	−.07	−.04					

LINCOLN, NEBR.

July 3	16.9						1.08	0.88			15.3
July 4	18.3						.97				22.6
Means							(1.02)	(.88)			
Departures							−.05	−.01			

ALBUQUERQUE, N. MEX.

July 3	9.8	0.65	0.73	0.88	1.04	1.36					9.8
July 4	8.5			.86	1.03						6.8
July 5	6.8	.67	.78	.91	1.06	1.36					7.9
July 6	6.8					1.28	0.78				8.2
July 7	8.8			.78	.94		1.06				9.5

TABLE 1.—*Solar radiation intensities during July 1945*—Continued

ALBUQUERQUE, N. MEX.—Continued

Date	Sun's zenith distance: 7:30 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p. m.
	75th mer. time	Air mass: A. M.				*1.0	P. M.				75th mer. time
	e.	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e.
1945	*mb.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
July 8	7.3			0.88	1.01						8.5
July 9	9.5					1.41					8.5
July 10	9.5	0.67	0.75	.88	1.00						9.8
July 11	10.6	.49	.57	.74	.93	1.28	0.69				11.0
July 12	9.8	.53	.61	.75	.96	1.51	1.00				11.4
July 14	10.2		.65	.77	1.01						8.5
July 15	9.4						1.14				10.2
July 16	9.5					1.21					8.8
July 17	10.2		.56	.71	.91	1.22					9.1
July 18	13.6				1.00	1.30		0.58			12.2
July 19	9.1	.58	.67	.78	.95		.66				10.2
July 20	7.9	.59	.67		.95						12.2
July 21	7.3			.71	.86	1.26					8.2
July 22	9.8	.60	.69	.80	.94						8.8
July 23	7.0	.50	.58	.73	.92	1.65					9.5
July 24	8.8	.54	.65	.74	.91	1.54					9.5
July 25	9.8	.47	.63								10.6
July 27	13.1	.68	.77	.90	1.02						13.6
July 29	11.4	.69	.80	.90	1.08						11.4
July 30	11.8	.67	.78	.89		1.47					10.6
July 31	11.4	.70	.81	.92	1.08	1.43		.93			
Means		.60	.69	.82	.98	1.38	.89	(.76)			
Departures		−.14	−.13	−.12	−.12	−.02	−.27	−.28			

BOSTON, MASS.

July 7	14.8	0.66	0.72	0.91	1.04						14.2
July 25	19.6			.44	.57						21.8
Means		(.66)	(.72)	(.68)	(.80)						

BLUE HILL, MASS.

July 1	17.8			0.89	1.07						20.0
July 3	15.9				1.16		1.18	0.98	0.86	0.75	14.6
July 11	12.5		0.82	.97	1.10		1.25	1.11	1.00	.90	11.7
July 12	10.8	0.93	1.03	1.15	1.26			.95	.82	.69	11.9
July 13	14.8						.80	.58	.41		15.5
July 21	24.2							.48	.33		20.8
July 23	18.4							.49		.27	19.2
July 24	17.7								.53	.44	20.7
July 30	20.2	.57					1.11	.97	.85		18.0
July 31	18.9								.69	.58	17.5
Means		(.75)	(.92)	1.00	1.15		1.08	.79	.69	.60	
Departures		+.14	+.22	+.14	+.11		+.07	−.03	−.01	−.04	

*Extrapolated.

TABLE 2.—*Daily totals and weekly means of solar radiation (direct+diffuse) received on a horizontal surface*

[Gram calories per square centimeter]

Date	Washington, D. C.	Madison, Wis.	Lincoln, Nebr.	E. Lansing, Mich.	New York, N. Y.	Fresno, Calif.	Fairbanks, Alaska	Columbia, Mo.	Boston, Mass.	Nashville, Tenn.	Twin Falls, Idaho	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Ithaca, N. Y.	Newport, R. I.	State College, Pa.	Put-in-Bay, Ohio	East Wareham, Mass.	Davis, Calif.	Boulder, Colo.	Tooele, Utah	New Orleans, La.
1945	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
July 2	545	498	702	257	286	685	432	765	248	363	706	152	570	350	172	422	167	553	356	779	880	880	415
July 3	714	795	680	584	666	702	483	728	574	689	696	200	664	630	730	634	748	736	595	785	606	842	295
July 4	604	357	712	506	594	711	625	571	521	444	693	306	630	644	650	667	599	723	699	775	622	886	439
July 5	389	582	711	437	382	694	584	693	510	455	721	630	648	611	544	647	415	556	682	774	669	872	305
July 6	571	728	515	564	375	698	551	761	329	558	700	507	624	388	651	397	594	719	424	766	752	882	553
July 7	695	762	684	552	546	585	537	545	560	666	703	418	638	706	700	684	667	692	744	759	460	705	395
July 8	691	679	657	576	591	242	580	192	506	606	658	584	612	550	719	610	586	642	669	595	556	610	355
Means	602	629	666	497	491	617	542	608	464	540	697	400	627	554	595	580	539	660	596	748	649	811	394
Departures	+89	+80	+75	+19	−16	−78	+60	+15	−13	+32	+86	−157	+19	+1	+23	+20	+12	+82	+82	−16	+91	------	−32
July 9	424	544	629	335	521	676	512	460	471	595	615	629	669	566	523	546	418	513	572	218	566	635	324
July 10	495	608	544	556	365	702	445	710	275	440	412	592	662	370	465	326	550	744	300	692	364	526	412
July 11	723	743	446	562	742	684	458	747	604	700	574	639	673	754	736	645	806	761	708	722	498	800	422
July 12	557	399	648	350	603	688	505	569	623	605	646	374	686	673	765	726	752	699	755	762	571	785	369
July 13	653	635	499	401	629	716	268	453	587	347	612	303	672	660	647	669	618	353	704	772	533	802	489
July 14	207	659	521	103	298	724	370	509	214	259	383	249	679	289	435	339	462	140	265	776	622	390	349
July 15	154	779	713	218	127	704	483	791	289	689	669	506	666	244	323	448	400	89	365	734	582	755	415
Means	459	637	571	361	469	699	434	606	450	519	559	470	672	508	556	528	572	471	524	668	534	728	397
Departures	−41	+87	−17	−101	−23	+11	−51	+10	−28	+17	−56	−127	+86	−6	+23	+2	+35	−80	+17	−74	+5	------	−28
July 16	495	676	350	621	283	685	208	707	246	648	642	347	603	306	180	302	437	767	299	725	590	826	551
July 17	85	333	542	547	156	684	465	436	186	715	611	346	574	191	408	349	144	648	408	750	671	812	600
July 18	285	717	516	602	160	714	488	687	331	586	558	611	620	315	463	473	374	558	460	778	470	486	116
July 19	264	697	625	515	163	695	355	706	376	468	515	306	405	487	384	411	546	657	623	762	362	769	296
July 20	519	322	377	497	423	690	647	728	342	457	391	597	634	340	594	204	367	604	349	752	435	765	167
July 21	454	437	571	136	623	692	342	638	583	605	647	600	622	630	705	412	628	436	526	764	446	792	256
July 22	390	736	629	461	188	703	332	526	308	433	657	603	620	527	204	483	252	554	617	748	472	822	510
Means	356	560	516	483	286	695	405	633	347	559	574	487	583	400	420	389	392	603	469	754	492	752	357
Departures	−127	+26	−58	+7	−182	+13	−25	+43	−82	+53	−43	−77	+6	−92	−106	−98	−120	+57	−12	+21	−18	------	−63
July 23	228	651	596	567	94	716	303	607	407	616	648	522	639	432	462	517	316	634	470	740	535	576	486
July 24	427	657	626	567	473	724	227	615	414	514	647	435	629	574	588	499	382	619	519	736	432	836	524
July 25	477	575	162	449	342	690	395	384	484	147	654	478	540	520	435	546	390	590	619	731	578	810	130
July 26	494	743	544	596	248	672	537	468	242	458	656	536	620	336	553	358	462	696	327	730	533	793	99
July 27	382	663	550	602	275	628	395	288	531	480	656	536	609	517	756	570	387	667	627	730	393	794	177
July 28	425	431	570	176	56	675	430	729	436	164	216	580	617	426	140	255	75	282	233	739	615	655	480
July 29	212	518	645	561	156	679	77	662	125	444	638	590	597	149	------	119	474	620	194	730	390	650	499
Means	378	605	528	502	235	683	338	536	377	403	588	525	607	422	491	405	355	587	427	734	496	731	342
Departures	−108	+90	−21	+28	−209	+23	−72	−10	−21	−65	+12	+17	+59	−29	+8	−71	−127	+49	−35	+9	−34	------	−74

ACCUMULATED Ddepartures ON JULY 29, 1945

	+1,925	+5,908	−5,166	−3,661	−6,209	+784	−1,988	------	−2,765	−4,060	−7,994	−11,998	+5,460	−5,467	−3,325	−6,440	+2,884	+1,043	−623	−357	------	------	----

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1945

By LUCY T. DAY

[Equatorial Division, U. S. Naval Observatory]

[Communicated by Commodore J. F. Hellweg, U. S. N. (Ret.) Superintendent, U. S. Naval Observatory.] All measurements and spot counts were made at the Naval Observatory from plates taken at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive toward the north. Areas are corrected for foreshortening and expressed in millionths of Sun's hemisphere. For each day, under longitude, latitude, area of spot or group, and spot count are included assumed longitude of center of the disk, assumed latitude of center of the disk, total area of spots and groups and total spot count.

Date	Eastern standard time	Mount-Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1945	h m		°	°	°	°				
July 1	9 1	7785	+9	318	−29	33	24	8	VG	Mt. Wilson.
		7784	+70	19	−23	73	48	7		
		7784	+75	24	−24	76	24	1		
		7781	+78	27	−14	79	73	1		
				(309)	(+3)		169	17		
2	10 20			None	None				(†)	Do.
3	11 2	7785	+31	312	−30	45	12	2	G	U. S. Naval.
		7785	+35	316	−29	46	12	4		
				(281)	(+3)		24	6		
4	10 26	7785	+43	311	−33	53	6	1	G	Do.
		7785	+45	313	−31	56	12	4		
		7785	+49	317	−30	57	12	5		
		7786	+57	325	−17	60	6	1		
				(268)	(+3)		36	11		
5	10 30	7785	+58	313	−32	64	48	2	F	Do.
		7785	+60	315	−30	66	24	1		
		7785	+61	316	−29	67	73	3		
		7786	+70	325	−17	71	48	1		
				(255)	(+3)		193	7		
6	10 20	7788	−76	166	−4	76	12	3	G	Do.
		7787	+54	296	−8	56	12	1		
		7787	+57	299	−8	59	12	1		
		7785	+70	312	−33	74	48	3		
		7785	+80	322	−31	80	109	2		
				(242)	(+3)		193	10		
7	10 38	7788	−62	166	−3	63	16	2	G	Do.
		7789	−31	197	−32	47	6	1		
		7789	−29	199	−31	44	6	1		
		7787	+68	296	−7	68	6	1		
		7787	+72	300	−7	72	6	1		
				(228)	(+4)		40	6		
8	11 4	7791	−85	130	−19	85	242	1	G	Do.
		7790	−78	137	+20	78	12	1		
		7790	−75	140	+18	75	36	1		
		7788	−50	165	−3	51	6	3		
				(215)	(+4)		296	6		
9	10 34	7795	−88	114	−23	88	12	1	G	Do.
		7795	−80	122	−21	80	97	1		
		7794	−80	122	−17	80	145	1		
		7791	−80	122	−19	80	242	7		
		7793	−77	125	+23	77	24	4		
		7791	−70	132	−20	72	388	1		
		7790	−64	138	+20	64	97	1		
		7790	−60	142	+18	61	109	2		
		7792	+71	273	+15	71	12	2		
				(202)	(+4)		1126	20		
10	10 35	7795	−70	119	−23	73	97	1	F	Do.
		7794	−67	122	−16	69	48	4		
		7791	−67	122	−21	70	291	1		
		7793	−66	123	+24	67	6	1		
		7793	−61	128	+23	62	48	1		
		7791	−57	132	−20	61	388	1		
		7790	−50	139	+20	52	109	3		
		7790	−46	143	+18	47	97	1		
		7796	+15	204	−21	28	12	2		
				(189)	(+4)		1096	15		
11	10 41	7793	−57	119	+25	59	48	1	VG	Do.
		7795	−56	120	−24	61	73	1		
		7794	−56	120	−18	60	24	2		
		7791	−53	123	−21	58	291	1		
		7794	−53	123	−16	57	97	4		
		7794	−50	126	−17	53	48	5		
		7793	−50	126	+23	52	97	7		
		7793	−47	129	+22	50	61	1		
		7791	−42	134	−20	47	339	1		
		7790	−37	139	+20	40	97	2		
		7790	−31	145	+18	34	109	2		
				(176)	(+4)		1284	27		

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1945—Continued

Date	Eastern standard time	Mount-Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1945	h m		°	°	°	°				
July 12	10 29	7795	−43	119	−24	50	61	1	VG	U. S. Naval.
		7793	−42	120	+25	46	61	13		
		7791	−39	123	−21	47	291	1		
		7794	−39	123	−17	45	194	9		
		7793	−39	123	+22	41	12	8		
		7791	−37	125	−18	43	73	15		
		7793	−35	127	+21	38	48	9		
		7793	−31	131	+21	36	48	1		
		7791	−30	132	−20	37	291	1		
		7790	−24	138	+20	28	61	10		
		7790	−21	141	+18	25	12	3		
		7790	−19	143	+17	23	73	9		
		7796	+43	205	−21	49	24	5		
				(162)	(+4)		1249	85		
13	10 20	7795	−31	118	−24	41	48	1	F	Do.
		7793	−29	120	+25	35	48	5		
		7793	−28	121	+28	36	291	1		
		7793	−27	122	+23	33	97	4		
		7791	−27	122	−21	37	291	2		
		7794	−27	122	−17	35	145	6		
		7791	−24	125	−18	32	48	7		
		7793	−22	127	+22	27	36	1		
		7793	−18	131	+22	25	36	1		
		7791	−18	131	−20	30	267	1		
		7790	−11	138	+20	20	97	6		
		7790	−7	142	+18	17	12	1		
		7790	−6	143	+17	16	73	5		
		7796	+55	204	−20	59	61	1		
		7796	+57	206	−21	60	73	1		
				(149)	(+4)		1623	43		
14	9 20	7795	−18	119	−24	33	48	1	VG	Mt. Wilson.
		7793	−17	120	+25	27	12	1		
		7793	−14	123	+23	24	97	12		
		7794	−13	124	−17	25	170	17		
		7791	−12	125	−20	27	291	1		
		7791	−7	130	−20	25	73	16		
		7793	−7	130	+22	20	97	21		
		7793	−5	132	+22	19	24	1		
		7791	−4	133	−20	24	218	1		
		7790	+2	139	+21	17	48	7		
		7790	+7	144	+17	16	61	12		
		7796	+68	205	−19	70	145	2		
		7796	+71	208	−20	78	194	1		
				(137)	(+4)		1478	93		
15	9 16	7798	−45	78	−27	55	12	2	VG	Do.
		7797	−25	98	−30	42	145	15		
		7795	−5	118	−24	28	48	1		
		7794	−2	121	−17	22	121	15		
		7793	−2	121	+24	20	12	1		
		7793	0	123	+23	19	73	12		
		7791	0	123	−20	24	291	1		
		7791	+7	130	−19	23	48	14		
		7793	+3	130	+22	20	73	2		
		7791	+9	132	−20	26	218	1		
		7791	+11	134	−19	25	24	7		
		7790	+15	138	+21	23	12	2		
		7790	+18	141	+17	23	48	14		
		7796	+81	204	−19	81	194	2		
		7796	+85	208	−20	85	194	2		
				(123)	(+4)		1513	91		
16	9 18	7798	−31	79	−27	43	48	4	G	Do.
		7797	−12	98	−30	36	194	2		
		7795	+9	119	−24	29	48	1		
		7793	+11	121	+24	23	48	6		
		7794	+12	122	−17	24	48	12		
		7791	+12	122	−20	27	291	1		
		7793	+20	130	+22	26	97	17		
		7791	+22	132	−19	31	36	11		
		7791	+28	138	−17	34	218	1		
		7790	+31	141	+18	35	24	5		
				(110)	(+4)		1052	60		
17	9 12	7800	−61	36	−22	66	24	2	VG	Do.
		7799	−47	50	+25	51	12	1		
		7798	−19	78	−27	36	48	15		
		7798	−15	82	−25	32	97	20		
		7797	−2	95	−27	31	24	4		
		7797	−1	96	−28	32	73	10		
		7797	+3	100	−30	34	97	5		
		7795	+22	119	−23	35	48	1		
		7791	+24	121	−18	32	24	7		
		7794	+25	122	−17	32	24	6		
		7793	+26	123	+24	32	12	6		
		7791	+26	123	−19	34	242	9		
		7793	+33	130	+22	37	36	11		
		7791	+36	133	−18	42	218	5		
		7791	+39	136	−16	43	36	3		
		7790	+45	142	+18	47	12	2		
				(97)	(+5)		1027	107		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1945—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1945	h m		°	°	°	°				
July 18	11 31	7800	−51	31	−25	57	6	1	G	U. S. Naval.
		7800	−47	35	−24	54	6	4		
		7799	−37	45	+26	41	24	4		
		7799	−33	49	+24	38	12	5		
		7798	−7	75	−28	34	48	7		
		7798	+1	83	−27	32	48	3		
		7797	+11	93	−31	38	48	7		
		7801	+13	95	−12	20	12	4		
		7797	+18	100	−33	43	36	5		
		7795	+35	117	−25	46	24	3		
		7794	+39	121	−15	43	12	5		
		7791	+40	122	−20	47	170	3		
		7793	+48	130	+21	50	6	1		
		7791	+50	132	−20	55	194	1		
				(82)	(+5)		646	53		
19	9 6	7800	−38	33	−25	48	12	2	P	Mt. Wilson.
		7800	−32	39	−24	43	16	3		
		7799	−24	47	+26	31	48	13		
		7799	−18	53	+25	27	97	2		
		7798	+8	79	−28	35	24	2		
		7798	+10	81	−27	33	48	6		
		7798	+15	86	−26	34	61	2		
		7797	+27	98	−30	44	24	1		
		7797	+31	102	−32	48	36	3		
		7795	+50	121	−25	57	12	1		
		7791	+53	124	−20	57	145	2		
		7793	+61	132	+21	61	12	1		
		7791	+62	133	−21	65	194	1		
				(71)	(+5)		729	39		
20	12 3	7800	−24	32	−25	37	6	1	F	U. S. Naval.
		7799	−11	45	+24	23	73	4		
		7799	−8	48	+23	20	48	1		
		7799	−2	54	+23	18	194	2		
		7798	+21	77	−29	39	24	4		
		7798	+28	84	−28	43	73	2		
		7795	+64	120	−25	68	12	1		
		7791	+67	123	−20	70	145	1		
		7793	+72	128	+22	72	6	2		
		7791	+79	135	−20	79	242	1		
				(56)	(+5)		823	19		
21	10 24	7799	+3	46	+25	22	61	18	G	Do.
		7799	+6	49	+23	19	24	5		
		7799	+11	54	+23	21	194	4		
		7798	+32	75	−28	45	12	3		
		7798	+42	85	−27	51	36	3		
		7791	+81	124	−20	81	145	1		
				(43)	(+5)		472	34		
22	9 5	7802	−68	323	+28	69	6	1	F	Mt. Wilson.
		7800	+7	38	−23	28	12	2		
		7799	+14	45	+24	23	73	19		
		7799	+20	51	+25	28	36	16		
		7799	+25	56	+25	31	194	5		
		7798	+56	87	−25	61	24	2		
				(31)	(+5)		345	45		
23	12 2	7802	−49	327	+32	53	6	1	G	U. S. Naval.
		7803	−48	328	+24	51	12	1		
		7803	−46	330	+23	48	12	1		
		7799	+28	44	+24	33	48	5		
		7799	+29	45	+23	33	97	1		
		7799	+32	48	+23	36	24	7		
		7799	+40	56	+22	42	194	1		
		(*)	+41	57	+35	47	6	2		
		7798	+68	84	−25	70	6	1		
				(16)	(+5)		405	20		
24	10 56	7804	−60	303	−32	67	6	1	F	Do.
		7803	−35	328	+24	39	12	1		
		7799	+41	44	+24	43	109	8		
		7799	+49	52	+23	51	12	3		
		7799	+51	54	+23	53	145	1		
				(3)	(+5)		284	14		
25	10 24	7804	−51	299	−31	59	6	1	F	Do.
		7803	−23	327	+23	28	12	2		
		7799	+53	43	+24	55	73	7		
		7799	+65	55	+22	66	6	1		
		7799	+66	56	+22	67	121	1		
				(350)	(+5)		218	12		

664729—45——2

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1945—Continued

Date	Eastern Standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1945	h m		°	°	°	°				
July 26	10 21	7805	−78	259	+16	78	170	1	F	U. S. Naval.
		7804	−41	296	−31	53	12	4		
		7803	−6	331	+22	18	12	5		
		7799	+80	57	+22	80	194	1		
				(337)	(+5)		388	11		
27	10 13	7805	−64	260	+16	64	194	1	F	Do.
		7804	−30	294	−31	47	12	1		
		7806	−11	313	+17	17	24	1		
		7806	−9	315	+18	16	36	2		
				(324)	(+5)		266	5		
28	11 35	7805	−50	260	+16	51	145	1	G	Do.
		7806	+3	313	+17	12	24	1		
		7806	+4	314	+18	14	24	1		
				(310)	(+6)		193	3		
29	9 45	7807	−63	235	+24	64	12	1	P	Mt. Wilson.
		7805	−37	261	+17	42	145	1		
		7806	+17	315	+17	21	16	2		
				(298)	(+6)		173	4		
30	10 31	(*)	−80	204	−20	80	24	1	VG	U. S. Naval.
		(*)	−80	204	−24	80	24	1		
		7807	−51	233	+24	53	6	2		
		7805	−24	260	+16	25	145	1		
		7808	−19	265	−3	22	6	1		
				(284)	(+6)		205	6		
31	10 51	7807	−36	235	+24	39	12	3	G	Do.
		7805	−11	260	+17	17	97	1		
				(271)	(+6)		109	4		

Mean daily area for 31 days=570

*Not numbered.
†Data from Mount Wilson charts.
VG=very good; G=good; F=fair; P=poor.

PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR JULY 1945

[Based on observations at Zurich except as indicated by an asterisk. Data furnished through the courtesy of Prof. W. Brunner, Swiss Federal Observatory, Zurich, Switzerland]

July 1945	Relative numbers	July 1945	Relative numbers	July 1945	Relative numbers
1	14	11	57	21	*a*41
2	0	12	*Wc*80	22	35
3	*Wc*7	13	100	23	27
4	8	14	*a*98	24	28
5	19	15	*Eaacc*105	25	31
6	34	16	*99	26	*d*33
7	18	17	*Eac*88	27	8
8	*d*32	18	*a*76	28	19
9	*dd*29	19	87	29	18
10	*Ec*51	20	44	30	17
				31	9

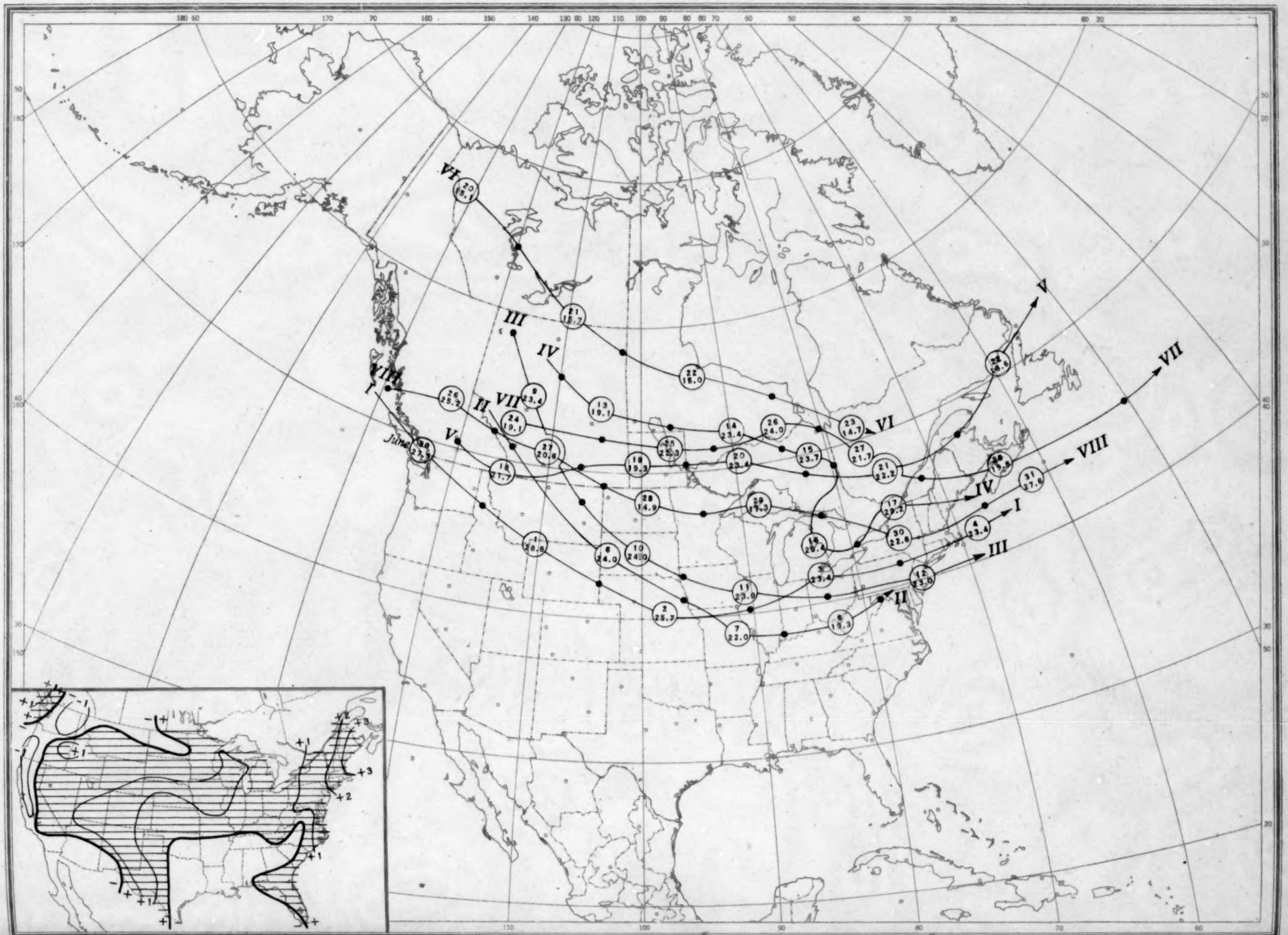
Mean, 31 days=41.9

*Observed at Locarno.
a Passage of an average sized group through the central meridian.
b Passage of a large group through the central meridian.
c New formation of a group developing into a middle sized or large center of activity; E, on the eastern part of the Sun's disk; W, on the western part; M, in the central circle zone.
d Entrance of a large or average sized center of activity on the east limb.

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, July 1945

Chart II. Tracks of Centers of Anticyclones, July 1945. (Inset) Departure of Monthly Mean Pressure from Normal

(Plotted by D. R. Harris)

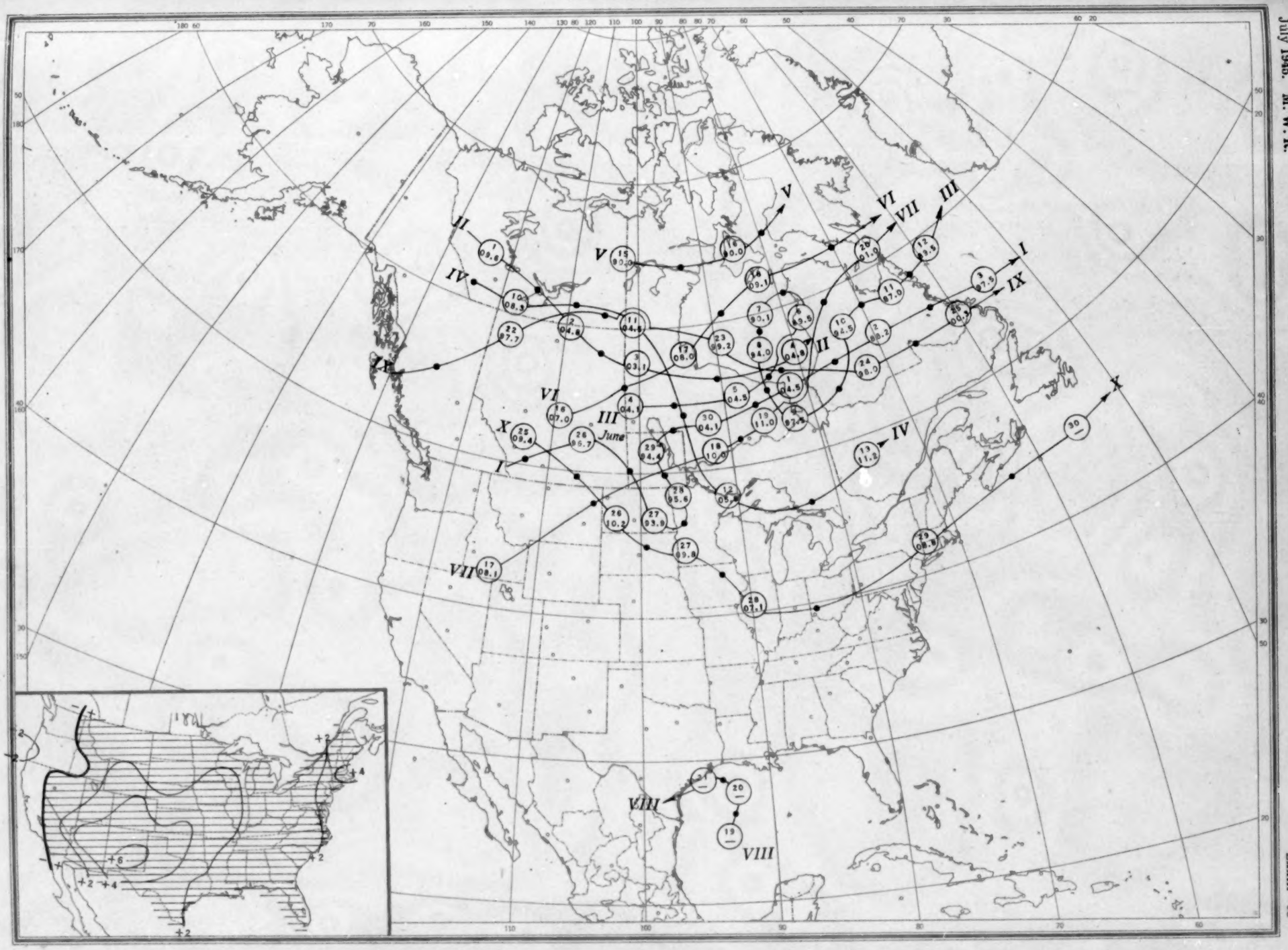


Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Chart III. Tracks of Centers of Cyclones, July 1945. (Inset) Change in Mean Pressure from Preceding Month

(Plotted by D. R. Harris)



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of cyclone at 7:30 p. m. (75th meridian time)

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, July 1945

Chart V. Total Precipitation, Inches, July 1945. (Inset) Departure of Precipitation from Normal

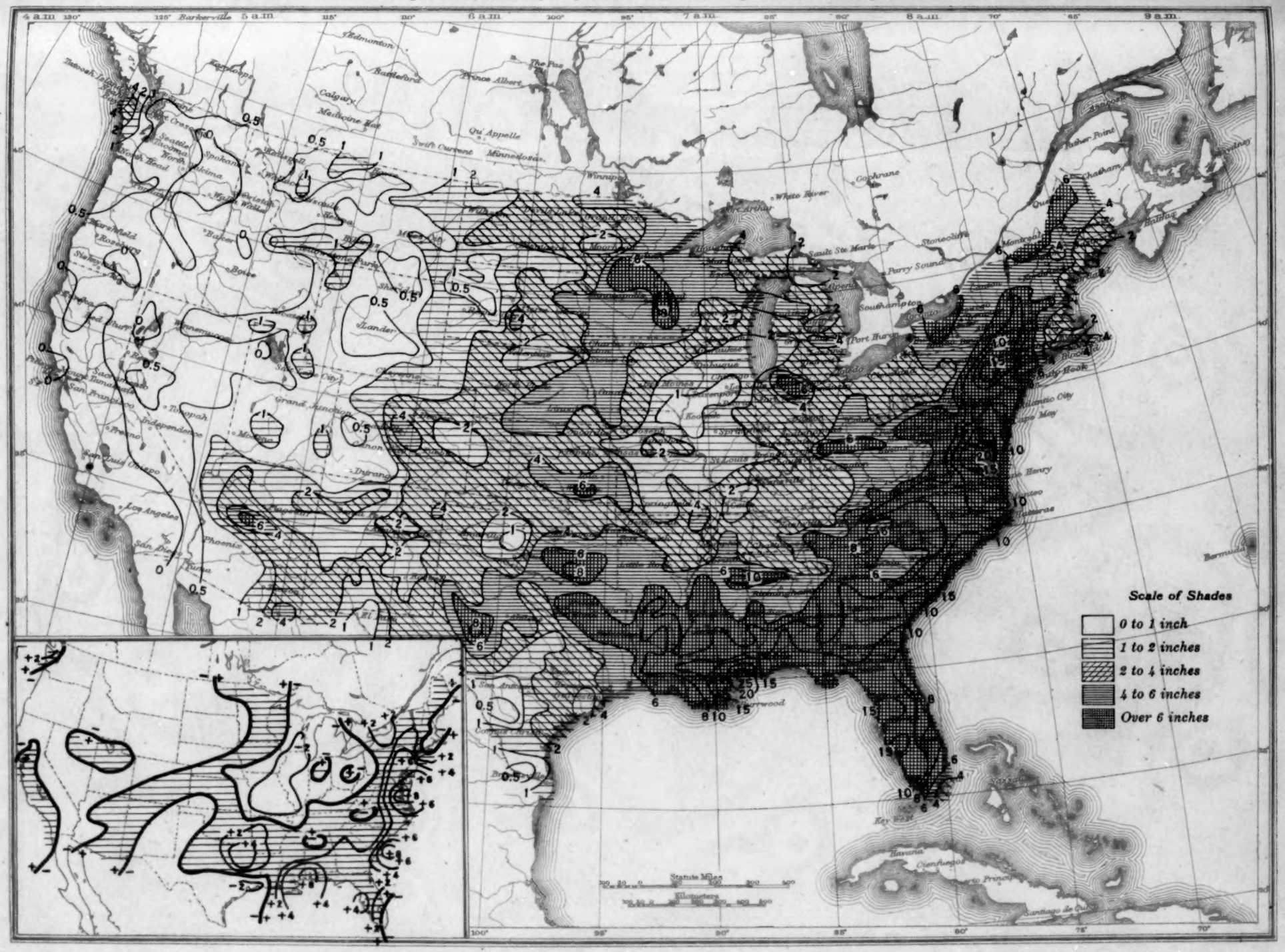


Chart VI. Isobars (mb), at Sea Level and Isotherms (°F.) at Surface; Prevailing Winds, July 1945

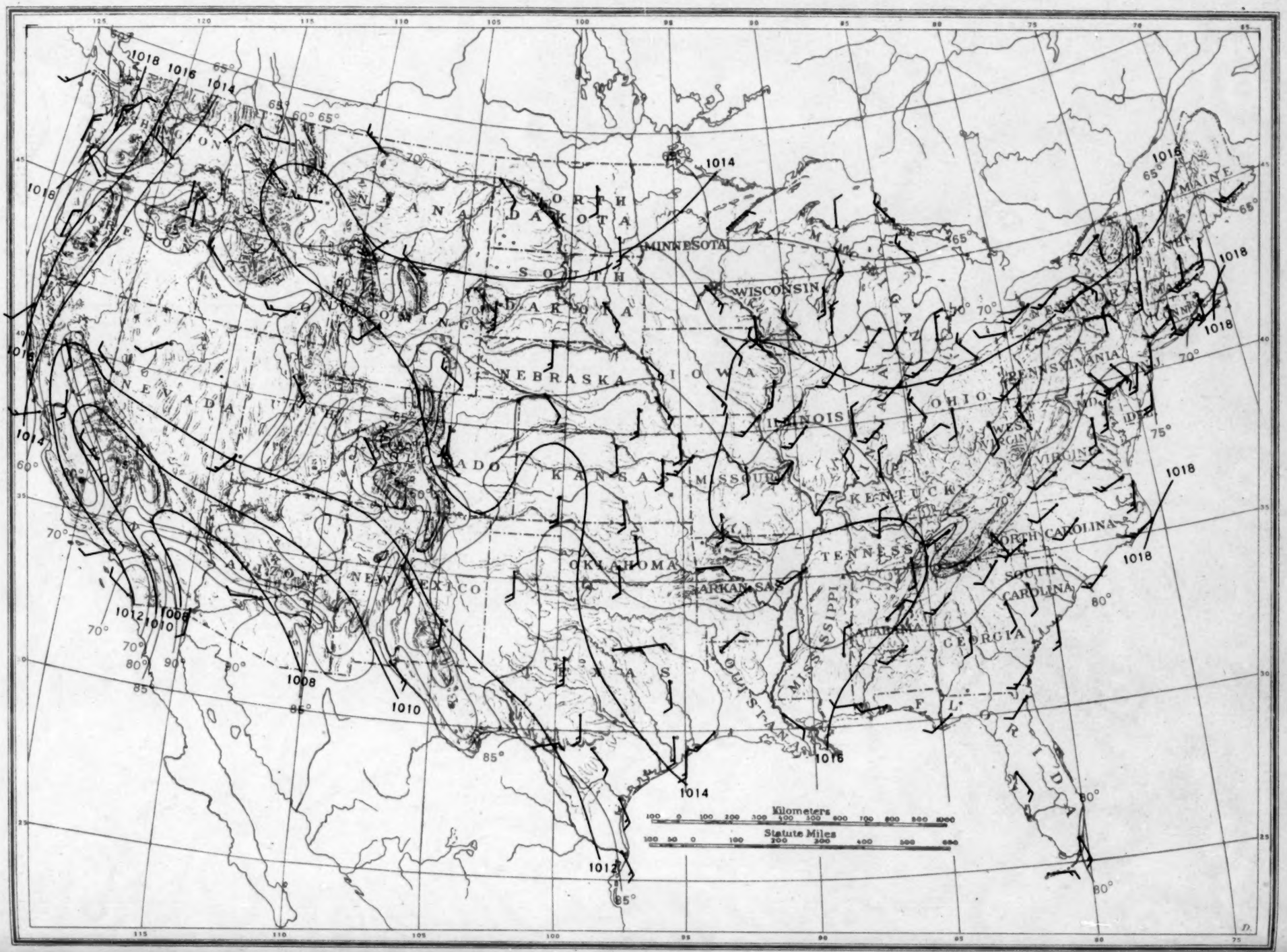
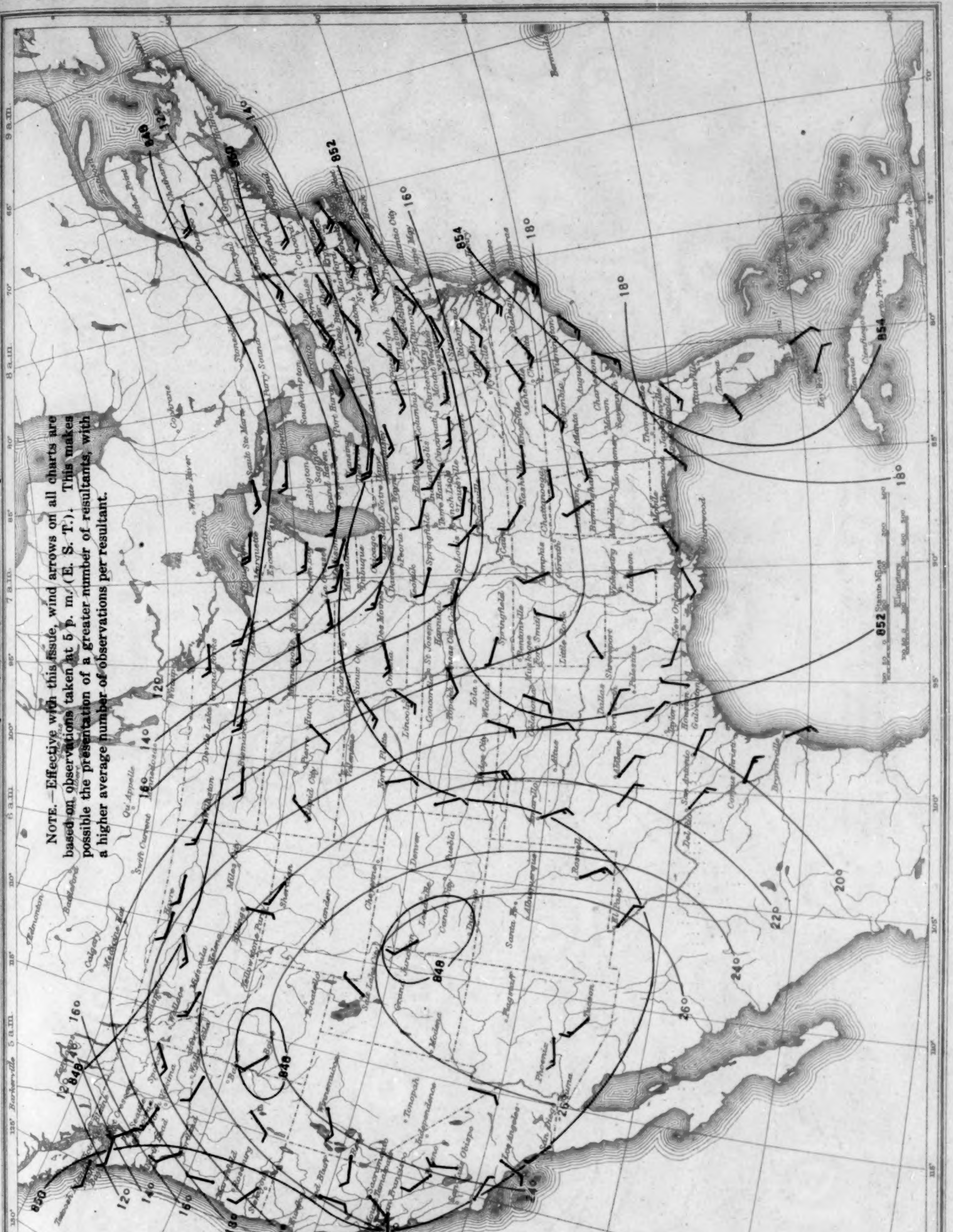


Chart VIII. Isobars (mb) for 1,524 Meters (5,000 ft.), and Isotherms (°C.), and Resultant Winds for 1,500 Meters (m. s. l.) July 1945

Isobars and isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot-balloon observations at 5:00 p. m. (E. S. T.).



NOTE.—Effective with this issue, wind arrows on all charts are based on observations taken at 5 p. m. (E. S. T.). This makes possible the presentation of a greater number of resultants, with a higher average number of observations per resultant.

Chart IX. Isobars (mb), Isotherms (°C.), and Resultant Winds for 3,000 Meters (m. s. l.) July 1945

Isobars and isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot-balloon observations at 5:00 p. m. (E. S. T.)

Chart X. Isobars (mb), Isotherms (°C.), and Resultant Winds for 5,000 Meters (m. s. l.) July 1945

Isobars and isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot-balloon observations at 5:00 p. m. (E. S. T.).

Chart XI. Isobars (mb), Isotherms (°C.), and Resultant Winds for 10,000 Meters (m. s. l.) July 1945

Isobars and isotherms based on radiosonde observations at 11:00 p. m. (E. S. T.) and winds based on pilot-balloon observations at 5:00 p. m. (E. S. T.).